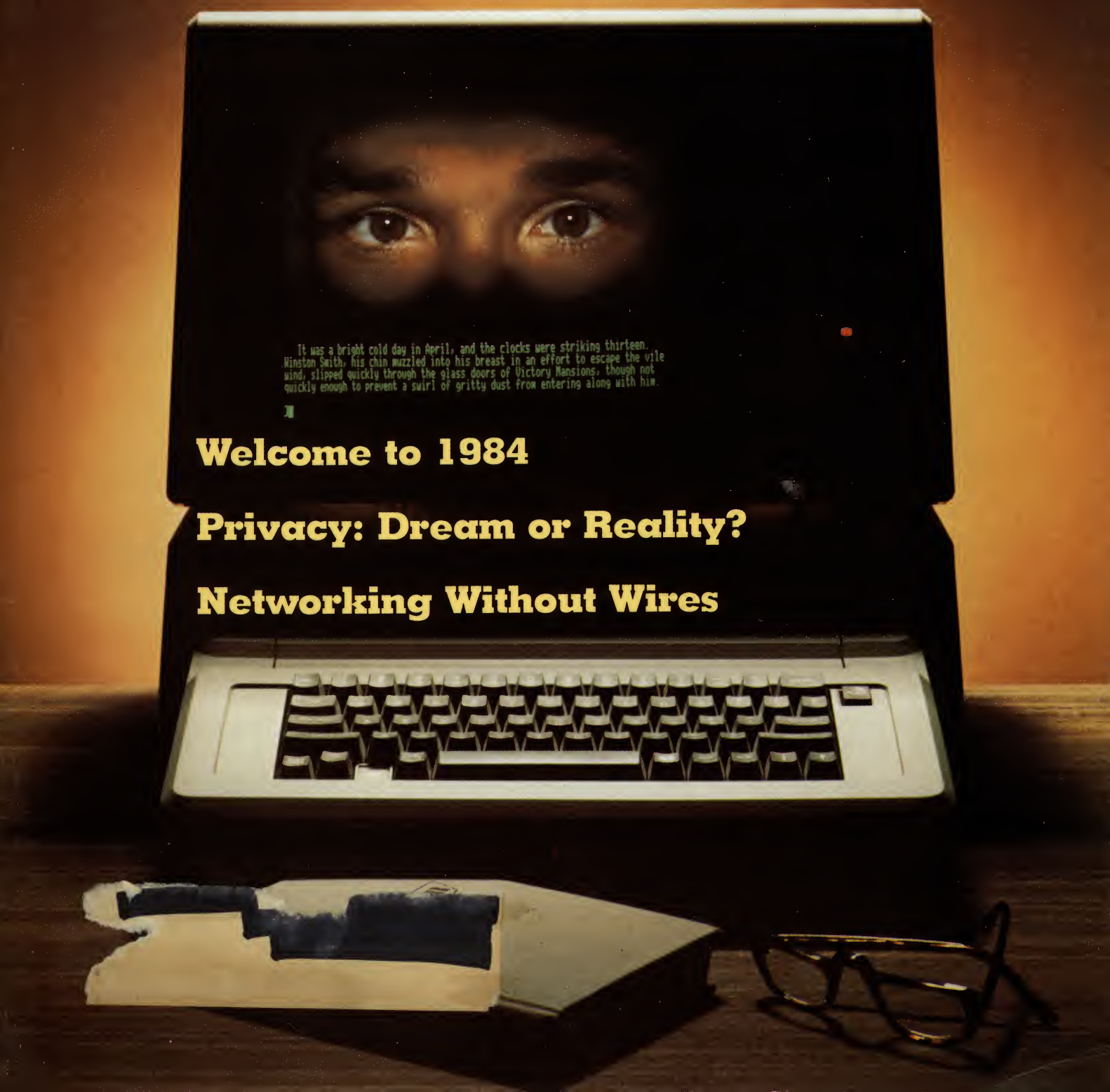
JANUARY, 1984 PRICE $2.50

TODAY

THE VIDEOTEX/COMPUTER MAGAZINE


It was a bright cold day in April, and the clocks were striking thirteen.
Winston Smith, his chin muzzled into his breast in an effort to escape the vile
wind, slipped quickly through the glass doors of Victory Mansions, though not
quickly enough to prevent a swirl of gritty dust from entering along with him.

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Privacy: Dream or Reality?

Networking Without Wires

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MAGAZINE ENTREE™

CompuServe Page EBB-1
Welcome to Electronic Bounce Back, TODAY Magazine's reader inquiry service.
To request information about products and services in TODAY magazine simply follow prompts on the following pages.
Your requests will be electronically forwarded; responses may come either

Guidelines to Requesting Ad Information With the NEW EBB

Electronic Bounce Back Electronic Bounce Back (EBB) is TODAY Magazine's electronic version of the traditional reader inquiry card. To request additional information about products or services described in TODAY Magazine, simply access CompuServe and Go EBB.

After a few pages of instructional information the following menu will appear:

CompuServe Page EBB-9
Select the area of TODAY magazine from which you would like additional information:
1. Display Ads
2. Editorial Articles/Reviews
3. Shopper's Guide

Enter your selection number, or H for more information.

A selection of either 1 or 2 will be followed by a menu listing of participants and the TODAY Magazine (printed) page on which each is located.

Display Ads, Go EBB-20. Inquiries to this section will be followed by a brief description of the TODAY ad. To request additional printed information simply enter your name and address at prompts.* EBB will add your User ID and electronically forward your request to the appropriate advertiser(s). Inquirer names, addresses and ID numbers will also be forwarded via U.S. mail at the end of each month.

Editorial Articles/Reviews, Go EBB-400. Requests* to this section will be stored and forwarded by traditional mail once each month.

CompuServe Page EBB-400
TODAY Articles/Review, Nov. 1983
p.xx = TODAY page reference
1. Engineering Specialist,p.36
2. Hayes Microcomputer,p.37
3. Electronic Blackboard,p.38
4. The Arranger II,p.38
5. The Incredible Jack,p.39
6. Omnifile,p.44

Shopper's Guide, Go EBB-37. This is TODAY Magazine's classified section and is designed to enable readers to easily scan areas of interest.

To request information from Shopper's Guide advertisers send CompuServe EMAIL or use traditional methods of communication.

CompuServe Page EBB-37
SHOPPER'S GUIDE
1 - Rates & Information
2 - Software
3 - Services
4 - Consultants
5 - Retailers
Last menu page. Key digit or M for previous menu.

Note: Additional requests during the same session will not require you to re-enter your name and address.

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EBB not only lets you respond to an ad with the usual name and address information, but it also allows you to ask for specific information, leave additional comments or in some cases even order a product. The advertiser in turn can reply, if so desired, through our electronic mail system, Email™.

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HOME

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Is the data network a realization of George Orwell's worst visions in his classic science fiction work 1984? Is videotex a forerunner of the all-knowing, all-seeing "telescreen" he described? Was George Orwell talking about 1984 at all?

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One of the overriding concerns with the onset of the year visioned in Orwell's dystopian novel is privacy. Just how safe are we?

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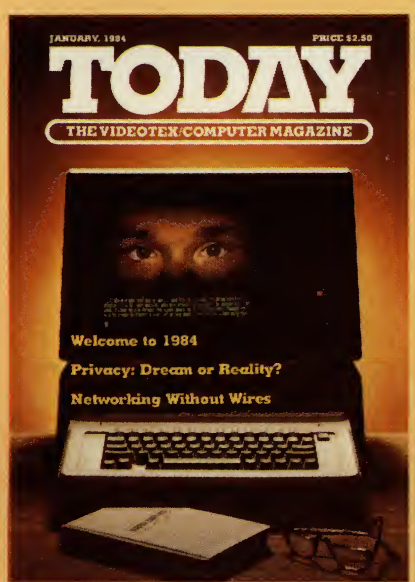


Cover
"Welcome to 1984"
This month TODAY examines the obvious issues raised in the information industry with the onset of the year visioned in George Orwell's classic science fiction work, *1984.*
Photo by Tim Courlas

Financial Databases

It appears that Steven Roberts did not do his homework when researching for his article Online: A Smorgasboard of Services (November). The article clearly does not confine itself to low-cost databases aimed at the individual as evidenced by its mention of Spectrum (used by Investment bankers at $100 per report) and numerous references to DIALOG (often used by corporate libraries to do research for executives).

Yet it fails to mention numerous databases that are offered by CompuServe to business and professional clients through value-added software that allows screening, sorting, reporting, and mathematical manipulation of the data. The article did not even correctly cover the databases that CompuServe offers to individuals through its Information Services.

COMPUSTAT II® is a highly-regarded database that CompuServe offers to more than 250 corporate executives, investment bankers, consulting firms, and professional money managers. It contains financial information on over 6,000 publicly-held companies drawn not only from SEC filings (as Disclosure II is) but also from annual reports, *The Wall Street Journal*, and numerous other sources.

Additionally, the Institutinal Broker's Estimate System (I/B/E/S) is offered by CompuServe not only to professinals (through the above mentioned software), but it also appears as a menu choice on CompuServe's Executive Information Service (EIS). This database contains estimates of FUTURE earnings and is collected from more than 75 institutional brokerage firms. Note that mention of Dow Jones's earnings estimator on 2,400 companies was made in the article but that no mention of this database — which currently contains 2,700 active companies and is growing — was made!

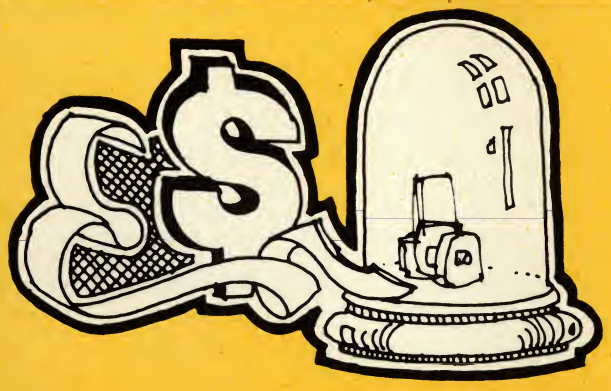
Securities Data's New Issues databases provide information used by investment bankers about initial public offerings of stocks and bonds. Once again, this is available through CompuServe's software.

Bob O'Malley
Product Manager
CompuServe Incorporated
Columbus, Ohio

War Games

There was much sensible comment in Charle's Bowen's "War Games" column (November). However, it is a serious error to regard "computer hackers who access systems without authority [as] crooks." The hacker is the victim of the real crime: bad management.

The real crooks are the managers and systems designers who permit systems that can be accessed by high school kids to exist.



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Standard & Poor's General Information File is an easy and inexpensive way to obtain online information on more than 3,000 major, publicly-held companies. The S&P data file for each company listed includes a Business Summary, Important Business Developments, Product/Service Line contributions to revenue/profits and selected financial items.

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Standard & Poor's General Information File is an ideal tool for investors, marketing executives, corporate planners, job seekers and financial institution managers.

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A NEW COMPANY WAS NEEDED AND STARTED

Fortunately, other people in the diskette industry recognized that making ultra-high quality diskettes required the *best* and newest manufacturing equipment as well as the best people to operate this equipment. Since most manufacturers seemed satisfied to give you only the everyday quality now available, an assemblage of quality conscious individuals decided to start a new company to give you a new and better diskette. They called this product the *Ultra* diskette, and you're going to love them. Now you have a product you can swear by, not swear at.

HOW THEY MADE THE BEST DISKETTES EVEN BETTER

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8" DSDD Soft Sector (Unformatted)	**82701**	3.19
8" DSDD Soft Sector (1024 B/S, 8 Sectors)	**82708**	3.19
5¼" SSSD Soft Sector w/Hub Ring	**50001**	1.79
5¼" Same as above, but bulk pack w/o envelope	**00153**	1.39
5¼" SSSD 10 Hard Sector w/Hub Ring	**50010**	1.79
5¼" SSSD 16 Hard Sector w/Hub Ring	**50016**	1.79
5¼" SSDD Soft Sector w/Hub Ring	**51401**	1.89
5¼" Same as above, but bulk pack w/o envelope	**00096**	1.49
5¼" SSDD 10 Hard Sector w/Hub Ring	**51410**	1.89
5¼" SSDD 16 Hard Sector w/Hub Ring	**51416**	1.89
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Don't we need a punishment for the director of a staff information department who did not order password changes after two key computer systems personnel left the company? Shouldn't there be a negligence charge filed against the officer of a major information hardware company who accesses the company's internal developments network with his first name as both the first and second passwords? And why isn't there a section of the criminal code to apply to the system programmer who doesn't think of giving us an audit log of accesses to the system? These are but a few of the "computer crimes" I have witnessed in the past month.

Herbert F. Spirer
Professor of Information Mgt.
The University of Connecticut
Stamford, Conn.

Learning with Logo

On page 39 of the October issue, there is a review of Dan Watt's excellent book, *Learning with Logo*. Although the reviewer, John Edwards, correctly recognized the significance of Watt's work, two of his comments may leave an incorrect impression in the minds of your readers. I offer the following supplemental information.

When the Logo turtle was mentioned, it was described as "an inexpensive tabletop robot." True, back in the early 1970s when Logo was still being developed, the turtle was in fact a robot that roamed about on the laboratory floor. However, MIT professor Seymour Papert, the developer of Logo, recognized that by the time Logo would be ready for public release, the graphics capabilities of computers would have been improved to the point where it would be possible to use a screen turtle.

Thus, when Logo became available, first for the TI 99/4 computer and then for the Apple, a triangular shaped cursor called the turtle was used for the graphics part of the language. In the majority of Logo uses today, the term "turtle" refers by default to the screen turtle.

The review leaves the reader with the impression that, since Logo is available for many computers, the book should have included information for owners of computers other than Apple and TI. There are at least two reasons the information was not included. For one, the information was not available when Watt's book was written. But the reason that will be of most interest to your readers is that Dan Watt is currently under contract to McGraw-Hill to produce books similar to *Learning with Logo* for each of the other versions. They are being written now and will be released within the next year or so.

Tom Lough
The National Logo Exchange
Charlottesville, VA

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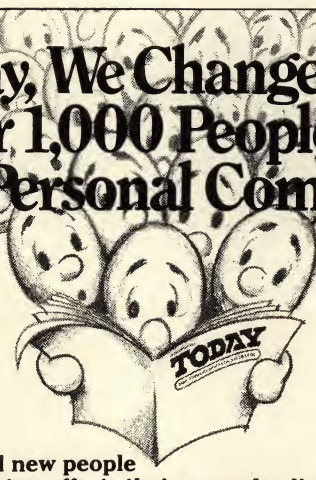

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TODAY magazine January, 1984
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DEAR READER

In this month's cover feature, writer Alex Krislov examines our present-day "information society" in light of George Orwell's dystopian novel, *1984*.

Without stealing Mr. Krislov's thunder, we'd like to highlight a point he made in the article that begins on page 17. Mr. Krislov, himself a science fiction author writes, ". . . every technology is double edged. What can be used against the average citizen may often be used by him as well." That's a refreshing thought amid the highly superficial gloom-and-doom coverage that telecomputing and computing in general often receives from the general media. While the rights of privacy and the public's general perception of the loss of personal freedom (whether real or imagined) are not to be taken lightly, a balanced view is in order.

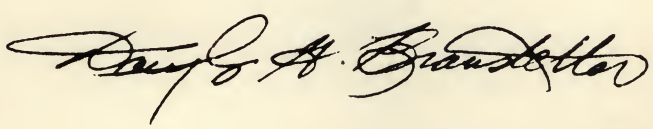
The modern information service is, in part, the other side of the double-edged sword to which Mr. Krislov refers. The communication and information retrieval capabilities of the information service can put considerable influence in the hands of the individual. Our task now is to find ways to prevent abuse by concentration of this influence in the hands of a few people. The best way to accomplish healthy diversity is to keep the public informed of the issues as well as the personal potential in the information industry. We suggest you start with our "1984" cover features.

* * *

Regular readers of TODAY may notice an expansion of our software and hardware review section this month. The expansion is in response to a call from our readers for the publication of more review material in the magazine.

Under the editorship of TODAY Contributing Editor Ernest E. Mau, the section has expanded from an average of four pages to 10 pages this month. We plan to add at least four more pages to the section next month. We will review a variety of hardware and software with special emphasis on the tools of networking: modems, networking support software, portable microcomputers and other communications packages and devices.

Mr. Mau, a highly qualified technical engineer, consultant and writer, has accomplished a great deal with the reviews section in the past few months. In addition to writing many of the reviews himself, Mr. Mau schedules and edits more than 10,000 words per month (and increasing) funneled to his Denver, Colo., office from all over the nation on the TODAY Writers' Network. We trust you will find the reviews useful and informative and urge you to let us know about products you would like to see reviewed in the pages of TODAY.



Douglas G. Branstetter
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Illustrated Alaskan Moose

COIN-OP CORNER

Regular Monitor readers will recall the stories of Kim Cohan (September 1983) and Lee Felsenstein (October 1983), both of whom are pioneering coin-operated computer centers. Well, they have company.

Kenneth K. McNulty Sr., a market researcher and computer programmer from Pittsburgh, Pa., has invented the Answers Machine, a coin-operated computer that provides its users with three minutes of operating time for a dollar.

The first Answers Machine was installed last September in the lobby of the Sheraton Hotel in downtown Pittsburgh. McNulty says the hotel, popular with traveling businessmen, makes the perfect test market. "This is a subset of the world, and so far," McNulty notes, "the results have been very good."

In addition to providing hotel guests with a selection of computer software, the Answers Machine also offers access to The Source information service. Furthermore, the system's internal telecomputing software enables users to connect with their own home and office computers and to any information service they personally subscribe to.

McNulty says he expects to have 50 machines to be operating by mid-year. So far, he has been negotiating with airline clubs, hotels, restaurants and libraries. But he has no plans to expand his company from a family business. "We'll do it one at a time," he says.

STRAIGHT TIME

Who can tell what started it all? Perhaps it was a broken home, hanging around with the wrong type of friends — any number of things. But all that Atlanta, Ga., police knew was that the computer was programmed to be bad, an underworld machine that kept the books for the leader of a sophisticated illegal lottery gang. It was just another bad apple, if you will.

But in a landmark case of computer rehabilitation, Jimmy Hill, a computer-knowledgeable police captain, straightened the machine out, and now the computer works for the right side of the law.

The unit was originally owned by a 10-county lottery operation that used a network of personal computers to evade the law. Equipped with computers, telecommunications software, and modems, ring members communicated from home to home without exposing themselves to the police. Gambling records were hidden on floppy disks. If things got too hot, the disks could be disposed of quickly and easily.

When the ring was smashed, the computer was seized as evidence and later forfeited under a state law that allows the police to retain property used in illicit ventures. Hill, who had several college computer classes under his belt, realized what the computer could do for the department's administrative services section. Armed with the appropriate technical documentation, he reprogrammed and rehabilitated the machine for the betterment of society and the Atlanta police.

The computer recently proved its worth by showing police officials that they had been overcharged nearly $50,000 by another city department for a month's gasoline supply. It has also been a major factor in cutting police supply purchases by nearly 25 percent.

Brenda Franklin, one of several police employees who operates the computer, uses it to keep track of false alarm reports. She used to manually process roughly 100 reports a week, now her output has nearly tripled.

The computer also keeps records of long-distance telephone calls, police car accidents, and addresses of officers' off-duty jobs.

— John Edwards

SALES BYTE

To hear retailers talk, sales of personal computers have never been better. But sales in non-computer stores can suffer when the salespeople cannot understand, much less communicate, with the average customer.

Shirley Young, president of Grey's Strategic Marketing, a division of Grey Advertising, explains: "These leisure and work-saving appliances are high anxiety products because they tend to intimidate the average person" who is about to spend a lot of money for complicated equipment. The situation, she says, "isn't helped by salespeople who try to impress the customer with their expertise rather than trying to match the customer's needs with the product, or salespeople who don't understand that the buying experience is part of what is being sold."

She adds: "IBM became what it is by having its salespeople first sell the customer confidence and then the machine."

LOOKING IT UP

Are encyclopedias doomed? That's the question raised by a National Science Foundation report that predicts encyclopedias as we now know them will be gone by the year 2000.

The problem, the report notes, is that "in printed form, encyclopedias can't keep up." Information is coming in at so fast a rate, conventional printing methods just can't keep pace with the flow of new facts.

For example, the Funk & Wagnalls encyclopedia has undergone 20 complete revisions since its 1912 edition. Company president Jim Stoltzfus says entries have been completely rewritten at least every decade "because we must accommodate all the new census information, which hits about 80 percent of the (27) volumes."

The information explosion plus shelf space and cost limitations are already forcing many libraries to turn to computerized forms of encyclopedias (including CompuServe's edition of the Grolier Academic American).

"Many libraries already are geared to the electronic age," says F.W. Lancaster, professor of library science at the University of Illinois. "There will certainly be a day, I believe, when publishers will no longer publish encyclopedias, and libraries will be museums of what was published in the past," Lancaster says, while adding, "That's not a popular thesis."

And what will the encyclopedias of the future look like? "I certainly can conceive of electronic encyclopedias through videodiscs," says Lancaster. "Eventually they could have moving pictures and sound, so instead of describing how an airplane flies they could have a whole model of a plane. A child could actually manipulate it, so it becomes more like a videogame."

— John Edwards

A NEW LIBRARY BRANCH

The electronic age is creating a new kind of library — one that is not free, does not lend materials in the traditional sense, but nonetheless is attracting scores of avid users.

These new libraries are software libraries, and they are popping up around the country. Their purpose is simple: allow users to sample and test new software before purchasing it. But software libraries do not operate as public libraries do. The users pay a membership fee, making the libraries much like private clubs.

One such library is the PC National Software Reference Library in Fairfax, Va. Membership fees vary, with individual members paying $300 annually, $1,000 for consultants, and $1,500 for corporations. This entitles the members to full use of the library (from 9 a.m. to 9 p.m. Monday through Friday and 10 a.m. to 6 p.m. Saturday), complete access to reference materials, discounts on classes and seminars sponsored by the library and a 10 percent discount on software purchased at the PC Store next door. After software is purchased, the library fully supports the user, answering questions and solving problems.

"Absolutely no materials may be removed from the library," says Doreen Norris, manager of membership services. Rather, the users test the software on an array of computers that line the library's walls, including the IBM PC and XT, Apple II, IIe and Lisa, Commodore 64, Atari, Radio Shack's full line, Timex, COMPAQ and DEC Rainbow.

The PC National Software Reference Library boasts hundreds of software programs and will obtain any program a user might want that is not in their inventory. Most of its programs come free from software manufacturers who are delighted to give prospective buyers a chance to see their software in action, especially since the library has proven that there is virtually no way for a user to illegally copy a program. No one is allowed to remove any materials, and no one may bring in any magnetic media.

But the PC National Software Reference Library is unique. Most of the other software libraries do not exercise the same strict limitations on their customers.

The Software Library in Montclair, N.J., is a store-front-type operation with several hundred game and educational programs. Membership costs $25 a year, which allows users to rent programs by the week for fees ranging from $7.50 to $15.

President Sam Bleecker says The Software Library's "goal is not to decrease the sales of software, but in fact to help consumers make more intelligent choices."

The vendors may not be so sure, since Bleecker must purchase the software he rents out. "We provide a warning that the software is not for copying. That is a concern of ours, and if I think someone is copying software, I give him back his money and deny him membership," Bleecker says. "And I have had to do that. I'm not running this place as a way for people to rip off manufacturers or to obtain software cheaply. My real purpose is to provide a consumer benefit. When that benefit is abused by the consumer, I feel obligated to end the membership."

A Virginia attorney who works in the field of computer law says that the issue of software piracy is the hottest, most controversial area between vendors, educators and software libraries. MicroPro, a software publisher, is now suing a California software library because the company believes people only rent software with the purpose of copying it. Ultimately, this question of consumer benefit vs. consumer abuse of the publisher's copyright will have to be decided by the courts.

— Cathryn Conroy

LOCH ON THE MARKET

Scotland, the birthplace of the Industrial Revolution, is now assuming a pioneering role in the computer revolution. In the region the Scots call "Silicon Glen" — the area from Glasgow to Dundee — more than 270 companies are manufacturing computers, software, microprocessor chips, and other high-tech products.

One hundred years ago, coal, steel and shipping helped push Scotland into the forefront of the industrial revolution. But the recent recession has shut down many mines, and orders for steel and ships have slipped to Japan and West Germany. Today, Scottish unemployment tops 16 percent.

But according to Eddie Friel, a Glasgow-based government consultant, things are rapidly changing for the better. Friel notes that tax and investment incentives begun in the late '50s and early '60s to help revive old-line industries are now opening the door to high-tech operations. "Already companies such as IBM, NCR, Hewlett-Packard, Motorola, and Burroughs have established plants in Scotland or made it a hub of their European marketing effort," says Friel. "And it's no surprise that Britain now has more computers per person than any other country in the world."

TICKER TO GO

Dataspeed Inc. has introduced QuoTrek, a cordless, pocket-sized receiver that provides its users with immediate trading information from the computers of the New York and American stock exchanges, the National Association of Securities Dealers over-the-counter market, the Chicago Mercantile Exchange, the Chicago Board of Trade, and the Commodity Exchange Corp.

Currently available only to San Francisco-area investors (New York, Los Angeles, and Chicago service will begin later this year), QuoTrek gathers its data from the subcarrier of a conventional FM broadcast radio station. Information is continuously transmitted to QuoTrek throughout the trading day and is stored within the unit's internal memory. To find the price of a stock or commodity, the user enters the appropriate trading symbol into QuoTrek's keyboard. A 40-character liquid crystal display screen immediately shows the latest sale, up/down tick, total volume, and high, low, and open prices.

QuoTrek costs $395 with a $60 per month service charge plus exchange fee. Complete details are available from Dataspeed Inc., 839 Hinckley Rd., Burlingame, CA 94010.

GET A JOB

Looking for a job? Electronic job listings are becoming a popular way of linking employers with prospective employees in technical fields such as computer programming, engineering and scientific research. All a job-hunter needs is a computer terminal and a modem.

Connexions, located in Cambridge, Mass., was begun last January and boasts more than 100 advertisers from the big names of IBM and Wang to smaller companies such as Kay Instruments and Dynamics Research. It is a proprietary on-line recruitment advertising service, which allows companies to list jobs both geographically and demographically, receive applicants' resumes, and pre-screen respondents.

Both advertisers and applicants pay a fee, although the fee to the applicant is minimal at $7.50 an hour.

President Robert Kvaal explains, "The service has proven itself as a viable means to giving high-tech recruiters a competitive edge because it reaches and screens more qualified people in less time. A real advantage is that companies can be assured that their ad is positively directed to the appropriate professional audience.

Listings appear in a consistent format for a two month period, which is accessible to prospective employees 24 hours a day. More than 1,200 phone numbers are available to access the service, so most users can call a local number. In addition, the electronic job listings on Connexions are now available through CompuServe at no additional charge above the regular hourly access fee. Users are given a separate password as well as workspace to maintain a current resume, which can then be sent to advertisers.

Computer Listings of Employment Opportunities (CLEO) began last May in Torrence, Calif. In less than five months the service garnered an average of 125 job listings, and Roger Martin, director of marketing, estimated that by fall the listings would number between 500 and 1,000. The jobs listed on CLEO were originally all in California, but job openings from around the country are now being accepted.

Job listings can appear for as long as the advertiser wishes, and new jobs are continuously appearing on CLEO's screens. Only those advertising for employees pay for the service; those looking for jobs access it at no charge beyond the telephone call. Five access numbers, all of which are in California, connect the user with the job information.

— Cathyrn Conroy

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BEGINNING AT THE BEGINNING

When my phone rang at one in the morning, I knew something was wrong. No one calls that late unless there's an emergency. And so there was.

"I can't figure out this book that came with the computer, Alex," my friend moaned. "Every time I press the enter key, the machine honks at me, and says I've got a syntax error! What's a syntax error?"

I was halfway into an elaborate explanation when it occurred to me that nothing he wanted to do with his shiny new machine should have produced such an error message. I stopped dead, and he said, "Is something the matter?"

"Yes," I replied. "You're trying to program your machine instead of running the software, aren't you?" Of course, he had no idea what I was talking about. But I'd tagged it — he was reading every bit of documentation, and trying to follow every last instruction.

That's when I realized that last month's column jumped the gun a bit. Instructions on dealing with a network are useful, but not if you haven't managed to get your modem to work yet.

Personal computers are a relatively new product, children of an industry that is itself barely out of its infancy. The earliest units were plainly created for computer "hackers," which is to say hobbyists. Much of the documentation stuffed into the shipping crate reflects these origins. Along with the keyboard and drives come books on programming, texts on creating color graphics, schematics, lists of the manufacturer's software, free magazine subscription offers, and sundry other paraphernalia, most of it useless to the computer neophyte.

When you buy a car, you don't expect a text on the workings of an internal combustion engine. Refrigerators are not packaged with instructions on building compressors. Computers are different. Because a computer performs so many and varied tasks, the manufacturer wants you to know all its capabilities.

The time may come when you wish to explore your machine's full potential. When you do, all those books will come in handy. In the meantime, ask yourself: What did I buy this computer for? Games? Business? Telecommunications? Word processing? None of these functions is going to be covered in that programmer's guide that came with the unit. So put it aside. What you want to know is how to load the software for your desired function into your computer — not how the software was written.

Illustrated Alaskan Moose

We're primarily concerned with learning to use telecommunications networks here, so let's assume that you bought your computer to sign onto a network. Since each system works differently, we'll also take it for granted that you've hooked everything together according to your computer's hardware manuals. Now what?

There are two ways to drive modems: directly from your keyboard or through software commands. Some modems use both. If you don't have modem software, you'll want to go directly to your modem documentation. That will tell you how to dial your phone, enter "terminal mode," and access the network. If your modem is driven by software, you need your computer user's manual and your software documentation. The former will tell you how to load the software into your machine. Once you've done so, you are no longer using a computer per se; instead, you are using a telecommunications terminal.

This is an important distinction. Most software does not use the same commands as your computer's operating system. When your software is in charge, trying to use your machine's "catalog" command will not only fail to provide a catalog of your diskette — it may actually clear your buffer, destroying any information you captured for storage! Other typical operating commands may reset the protocol you need for telecommunications, mess up files you need for special functions, or even destroy your software diskette entirely! Once you've loaded the telecommunications software into your machine, think of it as a terminal, not a computer! Put your computer's user's manual aside, and stick — entirely — to the software documentation.

This is a good general rule: software exists to turn your computer into a specific machine, with specific functions. The machine, once this metamorphosis is complete, is not your trusted computer: it's something else, with its own set of commands and its own special rules.

And that's why you need to look before you leap into the vast pile of documentation that came with your computer system. Every command you memorize may turn out to be just one more thing to "unlearn" when you turn your machine to more practical uses. A computer is what you make of it. Don't let the computer make something of you instead.

Alex Krislov is a free-lance writer from Cleveland. His CompuServe User ID is 76703,243.

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SWIG© SOFTWARE WRITERS INTERNATIONAL GUILD

COMPUTING ACROSS AMERICA
WITH STEVEN K. ROBERTS

Chapter 3

DISCOVERING THE BASICS IN OHIOPYLE, PA.

The journey — the high-tech bicycle odyssey — is now in full swing. The shakedown cruise is over, the testing complete, my house empty and on the market. My home is my bicycle.

I'm writing this from Ohiopyle, Pa., tapping away on the Model 100 before a roaring fire in the dining hall of the Pressley Ridge Wilderness School. After crossing two state lines in two days, I have made it to exquisite — but difficult — mountain country.

Yesterday, exhausted from the hills, traffic, and winds after a mere 34 miles, I stopped in Uniontown, Pa. I pulled the bicycle into a mall, hoping the result would be at least one interesting conversation. I set the bike security alarm and strolled about, returning to find two women — mother and daughter — standing by the machine, speculating.

After chatting for a while, Annie and Mary took me under their wings: Mary, the daughter, set off to arrange newspaper interviews and accommodations for me at Pressley Ridge, while Annie fell naturally into the role of PR agent, fielding questions from passersby.

(Her "presentation" almost came to a premature end when a mall rent-a-cop declared, "Can't have that in here!" But Loretta, a spry, diminutive 75-year-old, came to my defense, exclaiming: "What! Don't you know who this is? First Nastassia Kinski's dog, now this?!")

So with Mary's help, I soon found myself at this rather unusual school, standing before an enthusiastic audience of about 80 "emotionally disturbed" and "problem" boys, demonstrating the bike and telling tales of the road. They were alert, inquisitive, attentive — and I began sensing something of the nature of this school.

These eight to 18 year olds (who would probably be hostile and resentful in a more typical institution) are living in the wilderness, learning self-sufficiency as well as a remarkable sense of community. Problems are dealt with through peer pressure and "natural consequences" If they don't cut enough firewood, for example, they get cold.

In the rugged, remote mountains of southern Pennsylvania, Pressley Ridge is accomplishing what traditional institutions have failed to do. Claiming an 83 percent rate for smooth re-integration into society, the school's success depends on the boys' own resources: their natural curiosity and desire to learn.

It was these attributes that made my interaction with them such a pleasure. Standing before the group demonstrating the bike and its associated gizmology, I was aware of more focused attention and respect than I would have expected from a group of "problem" boys (or boys in general, for that matter!).

An interesting phenomenon occurred here, which leads to the point of this story. These boys were sent to Pressley Ridge not as a privilege (which it undeniably is), but as a corrective measure. They don't know how lucky they are, for they see the school as a remedial step, and the program, however enjoyable, as therapeutic.

So when a tall stranger on a recumbent pedaled into their dining hall, something important was reinforced. Although perhaps a rather extreme case, I appeared to them as a living example of self-reliance.

The computer isn't just for games; it helps me make a living. The solar panels aren't just something from a junior science magazine; they are practical tools for day-to-day existence. The camping gear isn't just for outings; it's for survival.

One of the counselors speculated that some of the kids would start building wooden recumbents out of saplings and make plans to travel the country.

Maybe soon there will be dozens of us, then hundreds, then thousands. Before long the Work Ethic and the American Dream could be replaced by a nation of nomads, networking furiously, participating in the solar-powered information society . . .

After all, we have the technology.

Steve Roberts publishes a more current account of his adventures in a CompuServe database (GO CAA for details). His CompuServe User ID is 70007,362.

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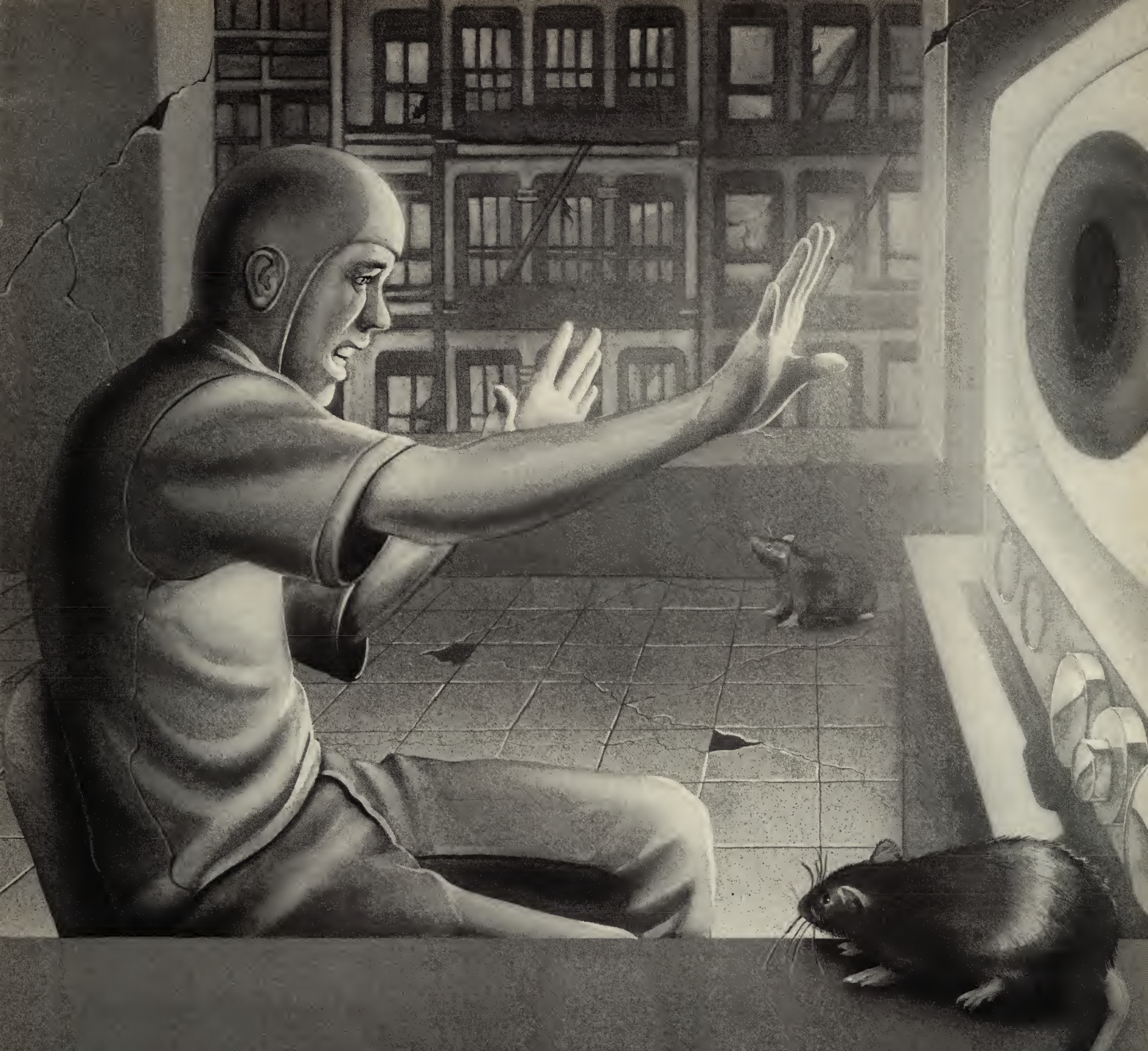

Rats scurry through dimly lit, disintegrating tenements. Within, members of the half-starved populace glance nervously over their shoulders at telescreens through which they are watched, even as they watch the screens. History no longer exists, save as an exercise in continual revisionism. Only one family tie is sacred: the universal obeisance to Big Brother.

WELCOME TO 1984

by Alex Krislov

Since Orwell released his most famous novel in 1949, comparing his totalitarian vision to the contemporary world has become a game played in schools, political tracts, film and art. The catchphrase of the game is, "Doesn't this remind you of *1984*?" After this year fades into memory, the game will doubtless go on, a myth requiring no recourse to real events.

Well, this *is* 1984, and we are in it. Was Orwell a prophet, an idealist, a curmudgeon, a cynic, or just plain wrong? How close did he come to the truth? By how great a distance did he miss the mark? Obviously, the United States and England have not sacrificed their democracies to Orwell's all-encompassing State. England is still England, not "Airstrip One." Posters of "Big Brother," his eyes following your every move, do not overlook every street.

Still, similarities exist. Giant databases hoard information on virtually every American. Spying on citizens is far simpler than it was during Orwell's day. "Newspeak," Orwell's term for government-sponsored and controlled language, pops up often enough to suggest a genuine fear on the part of many. And at the center of every controversy sits the imperturbable computer.

Ignorance is strength

Computers, for all the myths about them, are not "intelligent" in the manner usually meant by the word. Just as a car allows you to move more swiftly and efficiently than you might on foot, so does a computer allow you to process data — which is to say, information or knowledge — more swiftly and efficiently. But it does not create knowledge. It does not determine the uses to which that knowledge will be put. It is a tool, subject to use and abuse, like any other.

The largest change caused by computers is not a greater amount of knowledge but rather greater accessibility of knowledge. Records of virtually every type of transaction have been kept throughout history. Without the computer, it would be difficult, if not impossible, to search, collate, and analyze the resulting enormous mountains of data.

Consider a simple transaction like renting a car. Before the rental agencies were computerized, records were kept on when and where the automobile was rented, how many miles the renter logged, and possibly the renter's destination.

Such records remain standard today. Imagine, if you will, searching those records for a specific transaction without using a computer. Possible, certainly. Simple, no. Paper is intrinsically harder to search than electronic pulses, unless endless copies of each document exist. To search printed documentation, the searcher might first have to sift files for the very location of the rental franchise, before starting to search that franchise's files for the specific rental information desired. With a computer filing system, the search is almost instantaneous because everything is filed in a central database, and the computer does the searching.

But who would want to search car rental records? More people than one might think. Computer searches of car rentals, telephone conversations (not the content of the call, but merely the origin and destination) and bank transactions provided the evidence that showed Billy Carter, President Carter's brother, was engaged in business dealings with the Lybian government.

The databases of America are bursting with information on all of us. Every phone call is logged with the origin and destination number. Banks maintain records of every check transaction for a minimum of five years. In the recesses of the five largest credit reporting companies of America lurk over 150-million individual credit records. Two out of three U.S. citizens are filed away in life insurance records. If someone knows where to look, he can find information on your credits, debits, transactions, salary, phone calls, tax liens, lawsuits and arrest records — and that last item may or may not have a notation as to whether you were convicted.

It would be folly to suggest that these records should not exist. They speed up services of all kinds. Many modern businesses would be literally unable to operate without them. The question is, who can retrieve the information these databases contain?

Retrieval depends on a variety of factors, including laws, internal regulations, and the database's source. Recent legislation passed by Congress makes it more difficult to apply computerized information for uses "other than those for which it was collected." While some government agencies have chafed at this restriction, it has held up in the nation's court system. A court order, of course, still holds the key to unlocking files on your private life, but an agency must provide cause in order to obtain that key. Random searches are disallowed.

Some privately owned databases provide information only to certain customers. Such databases pool information from all the members of a group for the use of every member. This can be good or bad. For example, in some cities, landlords have joined information pools. Among the data they share: which tenants cause the most trouble. This is fine from the landlord's point of view, but not necessarily fair to the tenant.

In California a few years ago, a man paid his brother's rent by check. The information found its way into the rental agent's database. When the brother was later served with an eviction notice, the man who wrote the check was somehow included in the database information. As a result, he was listed as having been served with an eviction notice himself! No one notified him. He only learned about the problem after being refused apartments by three different rental agents. When he finally did learn of the problem, he was forced to go to court to get his name removed from the database.

The problem in this case was simply a lack of verification. No law requires such databases to check the information they post. If something is wrong with your file, no one will contact you for your side of the issue. Indeed, many credit bureaus are reluctant to share your credit record with you, should you come in and demand to check it for accuracy. Nor are they necessarily required to insert changes that you ask them to make. But those same files may be used against you when you apply for credit.

Computerization makes it possible for those records to spread much further than they would have in the days when files were confined to paper. Sharing is common and swift. There is probably no way to check *all* the files that exist on you, even if you can prove your legal right to do so. First, you'd have to find them. This is difficult because no requirement forces the database operator to notify anyone of new files, let alone the subject of the files.

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Many others can and do get their hands on these files, though. TRW, a credit reporting company located in Anaheim, Calif., routinely handles 35-million inquiries for 24,000 customers every year. In December 1979, a man sued TRW when he was denied a mortgage due to what he claimed was an out-of-date record. He was awarded $8,000 in damqges when TRW's contention that they had no responsiblity to verify their records was rejected by the court. The case is still being appealed.

Needless to say, this is not the sort of intrusion evisioned by George Orwell. He saw the growth of a ruthless State, Oceania, which developed "telescreen" technology in order to control its citizenry. But, as James B. Rule, professor of Sociology at the State University of New York, recently pointed out, Orwell never imagined "the possibility that the development of the intrusive technologies would occur on its own, without totalitarian intent." Rule claims that this is happening now.

Becoming your own Big Brother

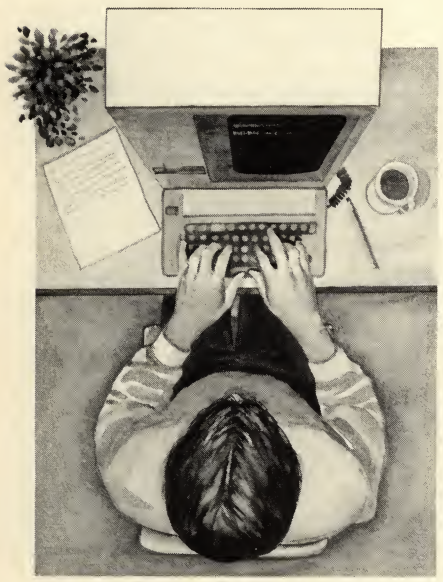
Is it? Perhaps. But every coin has a flip side, and every technology is double-edged. What can be used against the average citizen may often be used by him as well. When computers were so expensive as to be beyond the reach of the average consumer, computer technology was likewise beyond grasping. Now, with the advent of the personal computer, those advantages are available to anyone with a telephone.

Orwell was in no position to understand the modern ramifications of computer techology. The idea that one might someday have access to massive databases for a fee was not predictable in 1949. His 1984 only had one database, owned by the State. Our 1984 includes various public and private services, including technology databases, packet networks like CompuServe, and newspaper libraries — all electronic.

Collectively, these services are known as the Videotex Industry. Perhaps because of the industry's consumer orientation, it is among the most carefully self-regulated of all databases. While a packet network like CompuServe or The Source cannot guarantee your line will not be tapped (indeed, not even the telephone company can make such a guarantee), it is

in the network's interest to promise that your files will remain private. Some networks even provide "scramble" programs to make your private files useless to anyone who might somehow manage to read them. A network that became known as easy prey for snoopers would soon lose much of its appeal. No one likes to have his mail opened by strangers.

Most large consumer databases subscribe to a system of guidelines suggested by the Videotex Industry Association. These guidelines include guarantees against use of individual user's access records for purposes other than billing and market research;



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provide for non-disclosure of individual files and information without specific consent of the customer; and allow the subscriber access to copies of the database's records on him (though the database can charge for these).

The real advantage of so many private databases is something people rarely give much thought to: they provide a diversity of information sources. In Orwell's *1984*, there is only one source of information: the State. As a result, history is constantly under revision. Books are unnecessary, and newspapers are deliberately treated to fall into bits and pieces after a few days. "Memory holes" exist for the disposal of Old News, while new news is manufactured to fit the current scheme of things. By controlling knowledge of the past, according to Orwell, Oceania and Big Brother control the present, and thereby the future.

The more wellsprings of information from which one may dip, the less the chance of anyone poisoning all the wells. If the multiplicity of databases makes it difficult to find all the files that may have been opened on individuals, it also makes it impossible to doctor every file on any one subject. There are now so many databases as to make revisions of the past very improbable, if not impossible. Thus, Orwell's nightmare fails to creep into reality. Ironically enough, were all the databases available to be combined into a single huge database — as some have urged on occasion — the result would be much greater danger of Orwell's dream coming true.

This also provides some protection against monitoring of the private choices subscribers may make on their various database menues. James Rule, in an essay on "1984 and Totalitarianism," expressed concern with possible government monitoring of electronic mail services, news-reading choices, and other subscriber data. "Like in-person investigation of microfilmed checks," Rule writes, "mail openings and mail covers are labor-intensive. Electronic mail would make such activities much cheaper — and probably also easier to conceal." This is unquestionably true. The videotex industry's early push for privacy becomes all the more important in light of these potentials.

Newspeak

"Newspeak is, God help us, fun," says Anthony Burgess, author of *1985*, *A Clockwork Orange*, and other Orwellian visions of the future. He has a point. Phrases like "doubleplus ungood" sound somehow merrier than "very bad." "Goodthinkful" is fun, too. So is "duckspeak," a term signifying the ultimate aim of Newspeak: the ability to speak without any thought to the subject of which one is speaking.

The trouble with all this fun is that it is very limited fun indeed. The purpose of Newspeak in *1984* is to proscribe certain modes of thought by destroying the words necessary to express them. It would be impossible, for example, to translate the Declaration of Independence into Newspeak. A Newspeak Declaration would not only be entirely different from the original, but would not even make Newspeak sense. The vocabulary to express Jefferson's concepts simply would not exist. Lewis Carroll's 'Jabberwocky" would be more comprehensible.

Newspeak, however, is a political creation, not something spewed from computer interfaces. "At this point in time" may be replacing "now" in common usage, but there is no technological connection. Or is there?

In his essay on "Orwell and the English Language," M.I.T.'s Bernard Avishai opines that technology is changing English for the worse. Upon hearing a NASA official announce that the "Columbia spacewalk would be upscheduled in terms of one day," Avishai writes, "It dawned on me that he thought a computer might be eavesdropping . . . Think, now, of Newspeak's 'B vocabulary' — goodthink, goodthinkful, goodthinking. Computers have needed such compound words as fit into strictly regular sentences. As with Newspeak, any word should be available as noun, adverb, adjective, or verb, depending upon how it is used or combined with other prefixes and suffixes."

At the least, this is an interesting argument, suggesting that the "yes/no" structure of binary computer design is mangling the language of those who must speak with computers. At the worst, it suggests far more powerful changes to come. Will we someday speak of "bytes" instead of "letters?" Unlikely as it may seem, language has always been malleable, and few forces have as much impact on language as new technology. "Drive" once referred to cajoling cattle in one direction or another. It certainly was not something one did on superhighways.

Not everyone takes so dim a viewpoint. Science writer Isaac Asimov argues that, yes, computers are going to change the English language, and not only is that not dangerous, it's downright good for us!

English, Asimov argues, is a supremely illogical language. Instead of a uniform rule for plurals, English has several different arrangements. The plural of "can" is "cans," but the plural of "man," rather than being "mans," is "men." Such odd constructions not only prevent English from becoming a truly global (that is, worldwide) language, but also make it more difficult for computers.

"I think it inevitable that computers be designed to read the written word and reproduce it," Asimov says. However, computers are going to have a hard time with such inconsistent words as "write" and "might," "threw" and "true." The greater the number of irregularities in a language, the greater the problem of teaching a computer to read — or, for that matter, hear — the language properly.

Movements to reconstruct English into a more "sensible" language are nothing new. Even playwright George Bernard Shaw once lead such a movement. Since the medieval "vowal shift" that took place just after Chaucer's era, though, no major changes have occurred in English. And what Asimov is suggesting is indeed a major change.

One should also remember that language rarely changes logically. Shifts in meaning are first annoying, then common, and finally overwhelming. In the end, old meanings and spellings simply vanish. English, unlike French, is not guided and guarded by a national institute of language.

Asimov, a generous man, refers to the troublesome inconsistencies of English as "idiosyncrasies." He also suggests that these very idiosyncrasies are the source of America's 10 percent illiteracy rate. While some 87 percent of English words are spelled phonetically, 13 percent are not. He therefore argues that a more logical language, a language with consistent rules of spelling, would make the teaching of language equally consistent and logical.

Of course, those who are already literate will have enormous difficulty learning a new language. "I type 'night' without even thinking," Asimov writes, "whereas 'nite' will be a constant effort." The onus of correcting the spelling, however, will not be on the individual but on the computer. As more advanced word processing programs appear, so will more advanced computer-compatible dictionaries. The individual will not have to learn the new spellings by rote. The computer will fix his language for him.

Perhaps Dr. Asimov is right. But language is insidiously difficult to shape with any deliberation. Those who frequent CompuServe's various special interest groups (SIGs for short) cannot have helped noticing the small spelling changes which are becoming *de rigueur* among the more garrulous members. "U" often replaces "you." Contractions like "b4" and "r" are not uncommon. These usages, though, are rarely consistent, and one person may apply them in different manners in different messages.

This might indicate that computers, instead of changing language for the better, may change comprehension and literacy for the worse. If allowing computers to regulate one's spelling comes into vogue — and with many dictionary and spelling programs on the market already, it seems inevitable that it will — individual literacy

may suffer. Indeed, it could even vanish entirely. Asimov himself once wrote a story in which computers and calculators were so widespread that no one remembered how to do simple multiplication without machine guidance. The theory of math was unnecessary because the tool applied the theory for you. Could computers have the same effect on spelling prowess?

The two-way telescreen

1984 is so commonly referred to as a political horror novel as to hide one of Orwell's other strong points: humor. Some events in the book are not just scary, but funny as well. Among the most hilarious moments in the novel is the scene where Winston Smith is doing exercises under the direction of his "telescreen."

As Winston becomes lost in thought, he stops paying attention to his exercising. Suddenly the screen barks, "6079 Smith W! Yes, you! Bend lower, please! You can do better than that. You're not trying. Lower, please!" Under this "encouragement," Winston, "with a violent lunge," succeeds in touching his toes for the first time in years.

Incidents such as this, funny in themselves, quietly emphasize the true horror of the telescreen. One is not watched constantly. With 85 percent of the populace uneducated and poverty stricken, the remaining 15 percent literally cannot keep up more than sporadic supervision. But Winston never knows when his turn has come. Most moments remain private. Without knowing which moments are not private, though, Winston must assume that none of them are. And he can never turn the telescreen off!

We can turn our television sets on and off at will, of course. Moreover, we watch the television, and it does not watch us. Two-way interactive television, however, is no longer a dream of the future. It is happening right now in Columbus, Ohio. The Qube system, which permits instant polling of all subscribers, is wired into thousands of Columbus-area homes. Those thousands are expected to grow into a half-million over the next four years.

Each Qube subscriber, connected to the central office through cable, can register a vote instantly with the touch of a button. According to Qube, this feature is very popular. While ABC news must arrange for toll-free numbers in order to run an "instant" poll, Qube can put a miniature ballot box in each customer's hands whenever it chooses. The benefits of such a system are obvious. Who needs George Gallop when you can poll everyone quickly and efficiently? The dangers are less obvious.

In a prophetic story published over two decades ago, science fiction writer Mack Reynolds postulated such a system. Reynolds depicted its use for gladitorial games. Shall the loser live? Should he die? The choice is yours. Press "yes" or "no," now! While such a scenario is surely exaggerated, what is to stop other abuses? Suppose a news network chose as its polling question whether an accused murder is innocent or guilty?

Through the application of modem technology, computers have also become two-way telescreens. Every

CompuServe and The Source subscriber is effectively an interactive telescreen user. Unlike the Qube system, though, the uses of two-way network technology are under the effective control of the network subscriber. While the network can watch what you do with it, the choice remains yours. The network cannot command you to use one database in preference to another. Some network services are almost benign parodies of Orwell's telescreen terror. Real-time interactive exchanges between subscribers, such as CompuServe's "CB" and The Source's "Chat," allow users to trade thoughts, comments and even sexual fantasies, without any controlling "gatekeeper."

Other services allow even greater opinion exchange. Special Interest Groups exist for no other reason than the constant publication of ideas. If a member of such a group has a thought, he can post it instantly. No gatekeeper checks it before it appears on other user's screens. The omniprescent censor of Orwell's world would have his hands full just trying to read all the messages, let alone deciding which ones are permissable.

Computer technology thereby constitutes both a threat and a boon. It may make Big Brother more efficient. It also makes the public more efficient. Orwell's world has not come to pass.

And if we keep watching Big Brother, it never will.

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The following texts aided immeasurably in the preparation of this article. Some have been quoted. All are recommended to those who would like to read further.

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Alex Krislov is a free-lance writer from Cleveland. His CompuServe User ID is 76703,243.

VISIONS OF FUTURE PAST

Early in the course of *1984*, Orwell's protagonist, the hapless Winston Smith, wonders if it really is 1984. With government control of all printed material and the unchanging course of the world in which he lives, Smith realizes that it might not be 1984 at all.

As it happens, he is quite right. *1984* is really 1948, the year in which the novel was written. According to a number of sources, Orwell's original title was *1948*, and the publisher insisted on *1984*. Everything in the novel depicts a strangely warped view of the postwar world in which Orwell lived. His "Ingsoc," or "English Socialism," is a fearful vision of the ruling party of England. The scarcity of razor blades and other essentials quite accurately depicts the real postwar situation in London. In one sense, then, *1984* is not about the future but Orwell's "present."

That most dystopian novels — horror novels of future life — are actually satirical extrapolations from contemporary events is considered a "given" among authors of futuristic fiction. Each writer creates a different future from the contemporary features he or she finds most compelling.

A very different view of England under a socialist regime may be seen in Anthony Burgess' *A Clockwork Orange*. Where Orwell saw England being stamped under a tyrant's boot, Burgess envisions a society of people who are either totally programmed or wildly out of control. Gangs of juvenile delinquents roam the streets, spouting "Nadsat" lingo, a mixed language derived equally from English and subliminally-beamed Soviet propaganda. In Burgess' depressing future, the citizens are either unthinking "clockworks," unable to make moral choices of their own free will, or totally depraved monsters.

Not all dystopias focus on Socialism. *The Space Merchants*, by Frederik Pohl and Cyril M. Kornbluth, takes place in a purely Capitalist world. The President's power is barely vistigial, and advertising agencies rule the world, determine social class, and even wage war. The book centers on the battle between two agencies, both of which want the "Venus account" — total control of the planet's market and economies.

Another capitalist future scenario is *Oath of Fealty*, by Larry Niven and Jerry Pournelle. Centered on cities, the book depicts two classes: the Wealthy, who live in a tightly controlled, luxurious sealed city-within-a-city, and everyone else, living in the disintegrating outer shell of Los Angeles. In this very unusual and thought-provoking novel, the authors come down squarely in favor of the Wealthy.

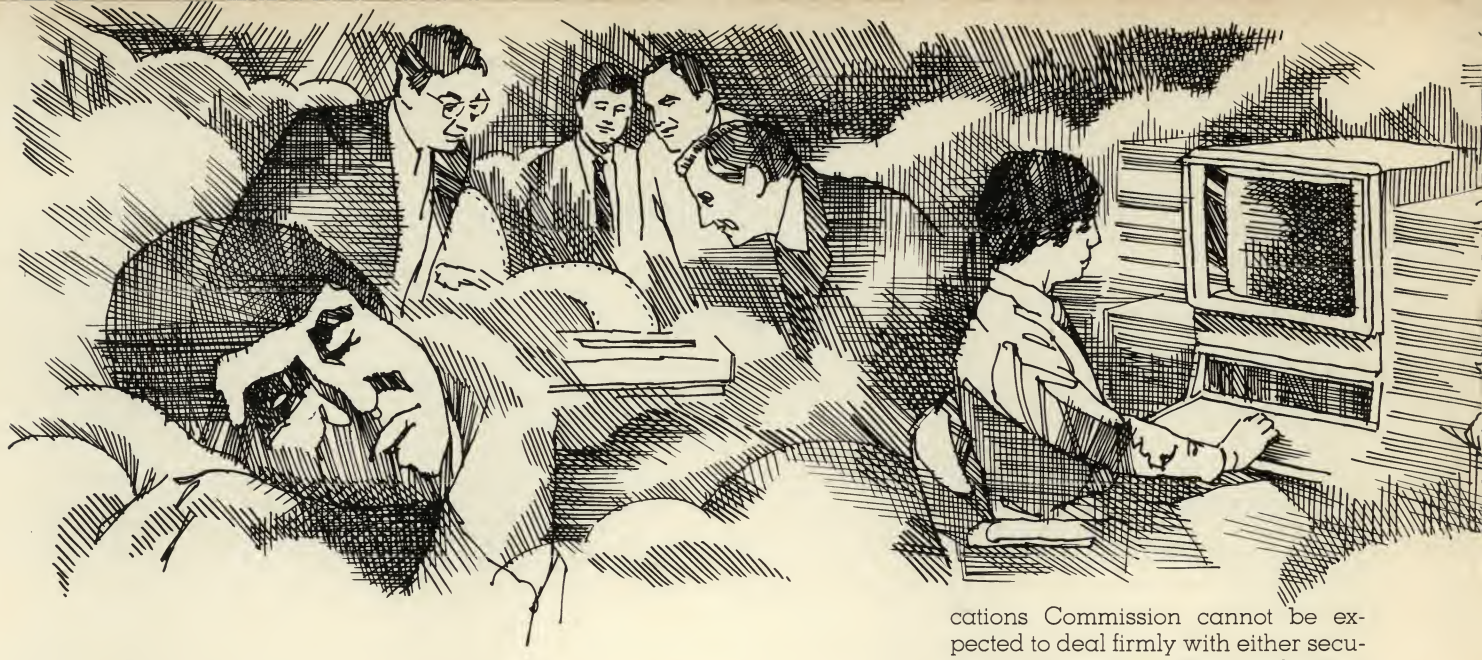
All the works mentioned above share a common trait: they implicity assume that the civilized world is going to survive. Not all science fiction writers believe this. H.G. Wells, as fervent a suporter of the Socialism in his time as Orwell was in his, did not expect civilization to continue into the 1980s. In his *The Time Machine*, he pegged the final all-destroying world war for a bit earlier. While his guess was wrong, it remains an impressive speculation; Wells wrote his novel before either of the 20th century's worldwide conflicts occurred.

Other writers have constructed elaborate "future histories" within which they place a number of works. Robert A. Heinlein, for example, outlined a future history back in the 1940s. The prediction for this era saw the end of "interplanetary imperialism," as revolutions effectively destroyed the 19th century economy that followed the "crazy years" of the 1970s.

Science fiction writers, of course, are not really trying to predict the future, but rather *a* future. If one of their speculations actually came to pass, they would be among those most surprised. One curious omission: no one in the entire science fiction field saw the rise of the computer. Personal computers didn't start appearing in science fiction novels until they were already appearing on desktops throughout the nation.

But before you condemn their lack of foresight, consider this: If one were to write a description of the modern world, complete with faster than sound aircraft, moon flights, personal computers, and nuclear bombs — do you think anyone in the 1940s would have bought it for publication?

— *A. K.*



NETWORKING PRIVACY:

The Dream and the Reality

by Byron T. Scott

It could have been the ergonomics of that late night stint at the terminal. I'd meant to retire earlier, but found too many interesting items in the databases and too many garrulous people wanting an on-line chat. The pepperoni pizza probably played a part (it's so easy to call out for a gastric ambuscade). Probably I carried too many network-generated thoughts to bed with me, too.

Whatever the reasons, my dreams came like sheets of sleet: cold, disturbing and successive.

• In a computer room somewhere, surrounded by clouds of mainframes, a man with many pencils and pens in his breast pocket read my electronic mail and chuckled. Then he gestured to others who, reading my computer-mediated thoughts, laughed out loud.

• On a glowing terminal deep within a gray stone building an agent for the Internal Revenue Service called forth my electronic banking records and took sheafs of notes.

• Without leaving the cavern of his deep leather chair a marketing executive examined the patterns of my shop-at-home purchases and prepared to intercept my paycheck with an on-line advertisement for a product I couldn't refuse.

• A rival writer, creativity-blocked but starving for success, broke into my work area and downloaded my latest unpublished literary effort.

• And out of this frieze of computer-based nightmares came a voice I somehow recognized as belonging to George Orwell: "I told you so . . ."

I awoke unrefreshed with the urge to throw the alarm clock through the screen of my computer terminal. But after a cup of coffee or two, I realized many of us have had such thoughts, asleep or awake, with and without the Orwellian commentary. Growing thousands are using personal computers in private ways, without sure knowledge that computer privacy exists. While security and privacy may be separate issues to computer professionals, the news of teen-aged hackers viewing confidential hospital records from Sloan-Kettering's Memorial Hospital reminds us that personal data can be as precious as that coveted by the FBI, CIA or AEC.

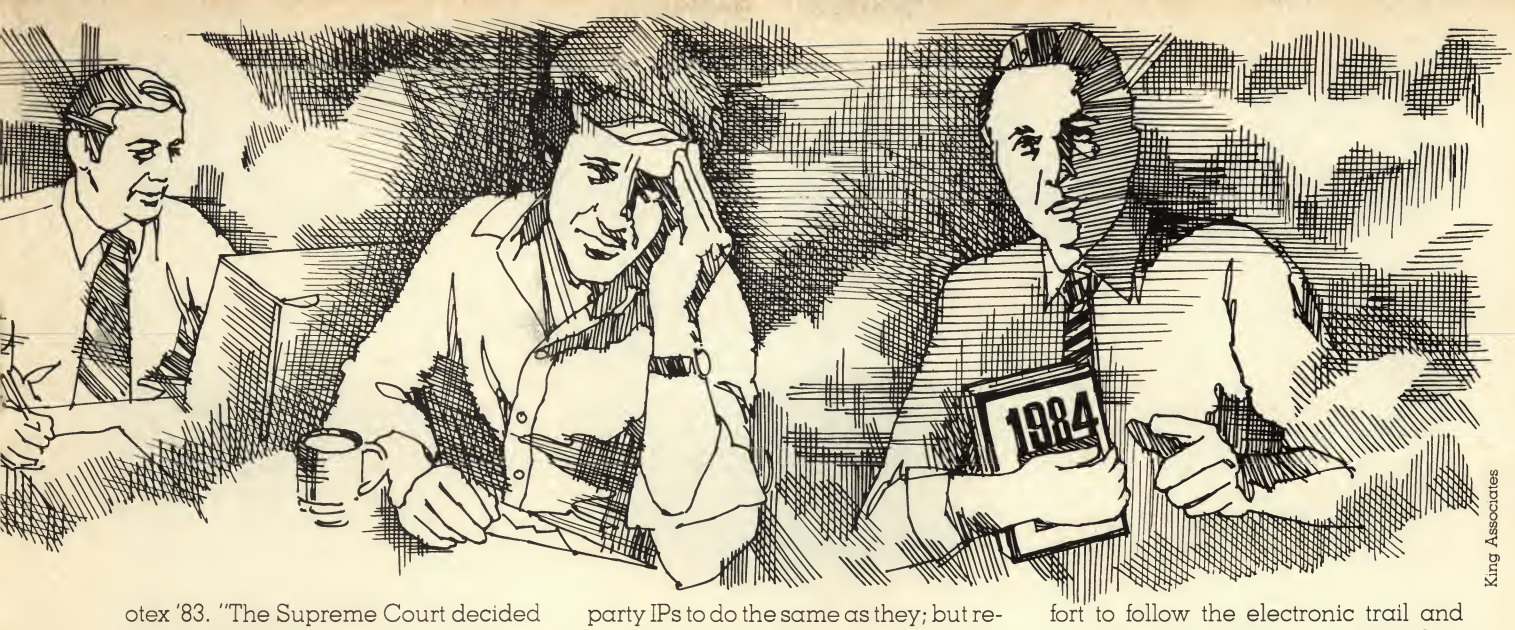
Are the disquieting thoughts about personal privacy justified? "Privacy is neither easily definable nor easily protectable in an electronic age," comments a 1982 report from the Institute for the Future in Menlo Park, Calif. While a number of federal and state laws address privacy, such as Section 605 of the Communications Act and the Omnibus Crime Control Act, none were written with videotex and teletext in mind. Most deal broadly only with interception of voice or broadcast messages. In the climate of deregulation, the Federal Communications Commission cannot be expected to deal firmly with either security or privacy, industry spokesmen believe. In fact, it may be too soon for either the FCC or Congress to act. Too little is known about the dimensions of the problems and their possible solutions.

"At the current stage of development of the industry and ideally for some time to come, voluntary regulation is the answer we prefer," comments Robert L. Smith Jr., director of administration for the Videotex Industry Association (VIA). One of the first major policy statements of the fledgling VIA, released last summer at Videotex '83, was devoted to privacy guidelines (See TODAY, November 1983). "We did this because we realized how much privacy is on every user's mind," he says.

The VIA guidelines come closest to a "Bill of Rights" for the private videotex network user. But the roots reach back to the 1960s and concern the proliferation of federal and industrial data banks. The Privacy Act of 1974 was passed while the first videotex system was in experimental stages across the Atlantic in England.

The subsequent reports of the Privacy Protection Study Commission, however, contain applicable principles. These include "minimum intrusiveness" by the database holders, that is, only retaining the information that is essential for their operations with the user. "Maximum fairness" allows the individual to be apprised of, and to review, the records being kept. A move to establish a Federal Privacy Board was beaten back during the Carter administration on the grounds that such rights were enforced best through the courts. The VIA's privacy guidelines are voluntary, but have an economic rather than a legal bite.

"Privacy is a matter of commercial reality," attorney Richard Neustadt of Washington, D.C., remarked at Vide-



King Associates

otex '83. "The Supreme Court decided 10 years ago that records belong to the record-keeper." Theoretically, this would allow banks to copy personal records "and hand them out on the street corners . . . But if they did this, they wouldn't have any customers." Neustadt, who was White House advisor on telecommunications policy during the Carter years, sees privacy as a central issue "not just because of the George Orwell retrospectives."

Neustadt recalls from his reading of *1984* how an elderly character recalls for the hero that the age of "Big Brother began with two-way TV . . . The technology of videotex heightens the issue. Computers are scary to many people . . . and lists are being kept."

Although most videotex currently is delivered by telephone, state laws involving two-way cable — such as recently enacted in California, Illinois and Wisconsin — could force services to organize their databases according to state-by-state regulations if legislation proliferates. "The industry has got to sit down with the legislators and say, 'Let us handle this. Don't mess with something you don't yet understand,' " Neustadt cautions.

The VIA's privacy guidelines then, while voluntary, are not meant to be cosmetic. Some of the provisions may be troublesome, Neustadt predicts. One in particular is the provision against government access without subscriber permission or a court order. "I guarantee you, those (federal) requests are going to be made to all of us in the next few years." The pressures on information providers may be great and legally expensive.

Governance of "third-party IPs" who provide databases to central services via gateways also may create problems. Although banks and stores usually have their own privacy rules, these may or may not conform to the VIA's suggestions. "We encourage SYSOPs (system operators) to get third party IPs to do the same as they; but realistically there will be some variety," notes attorney Neustadt, who was vice-chairman of the VIA Privacy Committee. The larger the system the more difficult this will be. "New systems should be designed with privacy in mind."

The rights of system operators to retain individual data are strictly confined in the VIA guidelines for: 1) responding to subscriber requests, such as feedback and purchases; 2) technical maintenance considerations, including keeping track of the types of terminals on the network; 3) preventing illegal or unauthorized entry or usage, a security consideration as well; 4) accounting and billing, and 5) market research. Aggregated or bulk records are permissible; individual records are advised to be destroyed as soon as practical.

Individuals have the right to refuse permission to access their data — unless a court order intervenes — and they cannot be refused further access on that basis. Users who wish to look at their own records can, however, be charged for that privilege, according to the VIA guidelines.

"We could read electronic mail, and we could monitor on-line conversations, but we don't," a spokesman for a major consumer service commented. "While we have the technical capability, there's no practical reason to do so, and we don't have the time to be a monitor looking over everyone's shoulder, even if we thought we had the right." A major answer to fears of privacy is a simple question: "Who would care?"

While individual "hackers" have been known to make forays into the work areas of other individuals and even to make unauthorized use of their accounts, videotex firms see this as a matter of security, as well as potentially a criminal act. "When something like that is detected, we make every effort to follow the electronic trail and take some corrective action, including kicking the perpetrator off the system," one systems operator says.

Despite this industry-recognized concern, a look through the users manuals of the three consumer-oriented videotex services with the most current subscribers — CompuServe, The Source and the Dow Jones Information Service — fails to uncover any assurances about user privacy. The closest statements to the topic caution the users to keep secret their identification numbers and passwords. Nothing is stated about the companies' protections for the users. But this disquieting omission is being corrected.

Discussions of computer privacy and security date to the earliest days of timesharing; each firm's integrity has traditionally been assumed. Privacy was part of doing business. The realization is growing that the consumer needs more than unspoken tradition to stay a customer. A growing number of firms — CompuServe, American Bell, Knight-Ridder, Cox and KeyCom were the earliest — are including company privacy policies in statements to subscribers. These may be part of databases or contracts and still may not appear in documentation, but they are beginning to appear. They may be just in time.

While videotex industry spokesmen assert that, so far, there have been no privacy abuses in the industry, they acknowledge that these will occur inevitably. "Anytime you communicate you risk your privacy," one company spokesman noted. "Someone could be listening in on your telephone or eavesdropping from the next restaurant table." The absence of videotex privacy abuses says as much about the youth of the industry as anything.

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CLASS OF '84

by Carole Houze Gerber

Mark Gunderson, Columbus (Ohio) Alternative High class of '84, is different from most of his classmates. For one thing, he has more hair. For another, he's probably had more computer experience than most other 17-year-olds in his hometown. Plunk him down in Cupertino with his five years at the keyboard, and he'd find a small herd of other young programmers to hang out with. At Columbus Alternative, he's in a class by himself.

Between a daily computer class where he occupies himself by teaching Pascal to five other students, two free-lance programming jobs, and his usual dose of games, Gunderson spends about four hours a day on computers. That's about half as much time per day as most high school students spend on computers during an entire academic year, according to a recent survey by the National Center for Educational Statistics.

While many of the members of the country's class of 1984 have had some experience with computers, the machines haven't by any means become the "fourth R" that proponents believe they should be. Other surveys of who uses school computers, when they are used and what users learn point up dramatically the uniqueness of Gunderson and other young programming whizzes. A report from the National Survey of School Uses of Microcomputers says that even though a great number of schools have microcomputers they are not necessarily being intensively used.

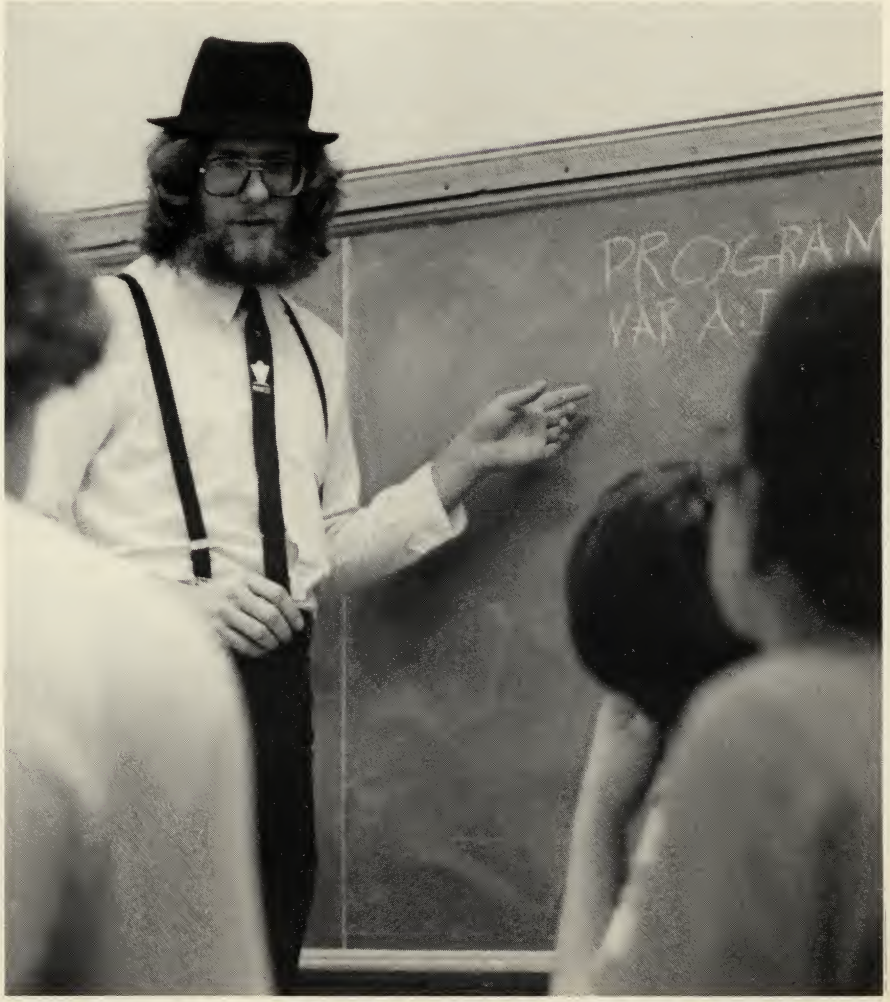
Another report, this one from the California State Assembly Office of Research, turned up a number of other problems. Twice as many California boys as girls take computer courses — a situation that disturbs Gunderson, who says he has yet to meet an Ohio girl who's a serious programmer. Other problems include poor software, a shortage of qualified teachers and an unequal distribution of computers among rich and poor school districts.

Still another survey, this one conducted by Market Data Retrieval, a Westport, Conn., company that keeps a database on all U.S. schools, colleges and public libraries, showed that 80 percent of the country's 2,000 wealthiest high schools have computers while only 40 percent of the poorest high schools are equipped.

The issues and problems surrounding computers in the schools are similar everywhere, according to Liza Loop, who has traveled widely promoting computer literacy through ComputerTown International (formerly ComputerTown USA). "There's tremendous homogeneity," she says. "Teachers across the country talk to me about the same concerns; they have questions about the same software." Loop, whose organization offers free, public access courses on computer literacy, programming and applications, worries that the typical school curriculum does not prepare the class of '84 — or their younger siblings — for a technological future.

"Our schools haven't begun to approach the change in the character of work in this country," she charges. "Those who set policy haven't yet realized that there's no point in trying to cram students with facts. Given the information explosion, we need a new set of basics that teach people to access rather than try to memorize information."

Loop, who's had 10 years of



Greg Miller

Mark Gunderson of the Class of '84: For most students computers haven't yet become the "Fourth R."

computer-related writing, teaching, programming and research experience, contends that average and below-average students — those unwilling or unable to seek out the technological skills pursued by their more able classmates — are being groomed for menial jobs that may soon disappear. Her concern is shared by occupational forecasters who've predicted that the days are numbered for those in typing pools, fast food restaurants and assembly lines. Loop describes these endangered positions as "interface jobs" in which a human serves as a go-between.

The typist is an interface, for example, between the dictated words and the printed letter. The assembly line worker is an interface between the unassembled parts of a product. "Those jobs don't take any creativity," explains Loop. "They do take intelligence and a lot of capacities that were formerly only available to human beings. But they don't take any originality — in fact, the better people suppress their individuality in these types of jobs, the better they perform."

Unemployment statistics bear out Loop's concerns about vanishing occupational opportunities in traditional fields. One in seven factory workers has lost his or her job in the past few years. Many are victims of automation who will never return to their previous positions. It's a grim situation for those left behind in the shift from an industrial to an information age, but author and technology specialist forecaster Marvin Cetron predicts the situation will improve dramatically.

In his book, *Encounters with the Future: A Forecast of Life in the 21st Century* (McGraw-Hill, 1983), Cetron says that in addition to the continuing need for computer programmers, many industrial-related jobs will be created to take the place of those phased out. "We think one of the major jobs of the future will be the robot technician, whose numbers could run to more than two million by the year 2000 . . . If the robot breaks down, who's going to see that the backup robots are ready? The robot technician, that's who."

Loop also believes the future calls for many human services to support technology. There will be a continuing need, she predicts, for people who are empathetic, have good judgment and are good communicators. "We'll see a tremendous need for more managers,

Greg Miller

School system microcomputer specialist David Heigle: Giving students the feeling of control over the machines

more inventors — more people who've been taught to be problem-solvers. Schooling won't end with graduation," Loop says. "Instead, we'll become a nation of lifelong learners — the popularity of adult education courses show we're already on that road."

Mark Gunderson began what he expects to be a lifelong learning experience about computers long before he perched on the edge of adulthood. Five years ago an afternoon introduction to computers at the public library left him yawning, but he took home the course materials anyway. An evening of study helped him get a handle on the information, and he went back to the library's computer equipped with the rudiments of BASIC. "It seems I can teach myself things better than I can learn them in classes," says Gunderson, who has also taught himself Pascal, COBOL and Fortran.

Judging from the size and enthusiasm of Columbus Alternative's computer classes, programming is a popular activity among Gunderson's classmates. And while few have reached his level of skill, they appear to show growing respect for talented programmers. "After I got into computers I noticed that programmers were some of the hippest, smartest people I'd ever seen — which seemed a bit odd to me, because I thought they'd be squares," he says earnestly. "I'm familiar with all the stereotypes — programmers wear wire-rimmed spectacles, tacky bow ties and Hawaiian shirts. Well, it's not that way and I think everybody is tired of hearing it."

Not everyone is as capable or as interested in computers as Gunderson, of course. And few of them have given as much thought as he has to a career, be it programmer, robot technician or sales clerk. But most students, especially young ones, want to learn at least the rudiments about computers, according to Dr. David Heigle, microcomputer specialist for the Upper Arlington (Ohio) City Schools. "I've yet to see a child express complete disinterest in our school system's computers," reports Heigle, whose school system last year made acquainting students with computers a "system-wide priority." Heigle says that Arlington's computer literacy program is designed to give students a feeling of power and control over the machines and that programming is, at this point, of secondary importance. "For the most part, these children are going to be running somebody else's programs someday. They may never need or want to take a programming course."

Heigle, whose school district is working with the city of Upper Arlington and Liza Loop of ComputerTown International to implement community-wide computer literacy programs, says that computers should be viewed as tools not just by school children but by adults as well. Loop takes this view of the need for widespread computer literacy several steps further. "I'm interested in seeing that the class of 1984 is computer literate, of course, and I'd like to see the changes in our educational system that would teach them to be problem-solvers, whether or not they make a career of computers. But at ComputerTown, we want to take computer literacy a lot further than that.

"We're not interested in stopping at that purple line called the boundary between the United States and someplace else. That's why we've changed the name to ComputerTown International. Technology as well as ignorance can cross boundaries. If everyone in the United States becomes computer literate and nobody in Mexico or other parts of the world becomes computer literate, then we've got problems. Encouraging computer literacy," Loop explains, "is one small way of contributing to global harmony. And that's certainly something to work toward in 1984."

Carole Houze Gerber is a contributing editor of TODAY. Her CompuServe User ID is 70007,1215.

NETWORKING WITHOUT WIRES

by John Edwards

Without a doubt, the most disturbing aspect of bulletin board hopping comes at the end of every month. That's when the telephone company tells you how much money you spent swapping messages, perusing databases, and downloading software.

As telephone costs continue to spiral upward, thousands of computer users have disconnected their modems, abandoned their telephone lines, and powered down their terminals. No, these folks haven't given up on telecomputing, its just that they've found a better life in the wild, blue airwaves.

Imagine a place where you can download public domain software, transmit electronic mail, and hold CB-like conversations — all without any line or time charges. No gimmicks. No membership fees. Just an endless flow of free information. That place is known as amateur radio.

While federal law prohibits the use of amateur bands for business purposes, thousands of home computer operators are finding the service an inexpensive and indispensable tool for personal computer communication. Unlike Citizens Band radio where users are restricted to voice communication, amateurs are allowed to transmit many different types of signals: voice, Morse code, television, and, of prime interest to computer enthusiasts, digital information. Currently, amateurs are using three different methods to transmit and receive digital information — radioteletype, on-air mailboxes, and a new technology known as packet communication.

Radioteletype

Radio amateurs have been experimenting with radioteletype (RTTY, in amateur parlance) since the late 1940s — about five years before the first practical computer came online.

Anyone who has ever used CompuServe's CB or The Source's Chat modes should have a pretty good idea of what RTTY is all about. Conversations can range from discussions of the latest computer and radio gear to heated political debates. The transmission of RTTY art, original artwork created with the aid of a dot-matrix or daisy wheel printer, is also a popular pastime.

An RTTY conversation is started by a station picking an amateur frequency and sending a "CQ" (a general call to all stations). When received, the transmission looks like this:

CQ CQ CQ CQ DE KI2U KI2U
CQ CQ CQ CQ DE KI2U KI2U
CQ CQ CQ CQ DE KI2U KI2U
K

"KI2U" is the callsign of the station, "DE" is ham slang for "from," and the "K" signifies that the caller is now waiting for a response (since all RTTY communication is half-duplex, users have to be careful not to step on each other's signals). If station WB2LWJ hears the call and feels like chatting, he would reply:

KI2U DE WB2LWJ K

And the conversation begins.

Equipment

In addition to a computer, RTTY users also require two additional pieces of equipment. Most important is a suitable radio transceiver. These are available both new and used for prices ranging from about $150 to $3,000. Computer and ham radio flea markets are good sources of used equipment. Most communities feature one or more of these events each year.

The second piece of equipment is a terminal unit. This item (not to be confused with a computer terminal) looks and works much like a telephone modem. But instead of interfacing a computer to Ma Bell, the terminal unit connects the computer to a radio transceiver. Terminal units range in price from about $150 to $500. Most are designed to operate with a specific type of computer and are shipped with the appropriate software and connectors. A terminal unit will work with virtually any radio transceiver and requires no technical ability to install.

Radio Mailboxes

Ham radio mailboxes are the wireless twins of computer bulletin boards. Sponsored either by local radio clubs or public-spirited amateurs, most mailboxes have the same general aim of their telephone-based counterparts: disperse free information and provide a meeting place for people with similar interests.

Unlike telephone bulletin boards, which typically draw from a limited pool of local users, most radio mailboxes have a membership covering one or more continents. A look at a typical mailbox's user log can turn up names from such far-flung places as Great Britain, Australia, Japan, and Antarctica. On more than one occasion, users from the Soviet Union have been known to drop by and provide information on a technical or personal subject. Home computers, however, tend to be quite rare behind the Iron Curtain.

Accessing a mailbox can be a bit trickier than dialing your favorite bulletin board. Since radio operators are forced to rely on the whims of nature (static and poor band conditions can often make access impossible), it's not always possible to log onto a system when you want to. Also, radio mailboxes can often become quite crowded, especially during evenings and on weekends. Just as a bulletin board user often encounters a busy signal during these times, a radio operator might find that someone has beaten him to the system.

Like RTTY, all mailboxes operate in the half-duplex mode. To access a mailbox the user must turn on his transmitter, "open" the mailbox with a short message, and then watch for an acknowledgement. Once in the system the user merely transmits the appropriate commands to store and read messages, read bulletins, and so on. Using a mailbox requires no additional equipment beyond that required for RTTY.

Tuning in the world of digital communications: The AIR-1 from Microlog turns a microcomputer into a shortwave receiver

Photo courtesy of Microlog

Packet Radio

Packet radio is a relatively new digital transmission technique, but one holding a great deal of promise. Unlike RTTY, which is mostly used on international shortwave frequencies, packet radio systems are primarily found on short-distance VHF bands (approximately the same frequencies used by local police departments and taxi cabs). But whatever this mode lacks in distance is more than made up for with technical sophistication.

As its name implies, packet radio works by sending data in a series of rapid digital bursts or "packets." Each packet consists of a 256 character transmission. To send a packet message the user turns on his radio, computer, and terminal node controller (the device that enables a computer to send and receive packet data). After typing in a few commands at the keyboard, he sits back and listens to the electronic "chirps" that mean the message is on its way. At the receiving end, the message is automatically decoded at a friend's home and displayed on his video display. If the message recipient isn't home, the message can either be stored in his computer's memory or in a local club's mailbox.

Packet radio's biggest advantage lies in its error-correcting ability; if the receiving computer detects a mistake in the information packet delivered, it automatically tells the transmitting computer to repeat that information. Not surprisingly, this feature makes packet communication an ideal medium for the transmission of computer programs and data. Another plus is that dozens of packet users can share the system simultaneously, a definite advantage over mailboxes and telephone bulletin boards.

As it now stands, packet radio activity is relatively light. Most major cities have one or more organized networks, but finding an active system in sparsely populated regions can prove difficult. One group pioneering activity in this mode is the non-profit Tucson Amateur Packet Radio Corp. (P.O. Box 22888, Tucson, AZ 85743). Besides providing information and technical assistance to users and potential users, this organization also offers a terminal node controller and appropriate software. Available only in kit form, the unit sells for between $200 and $300, depending upon system configuration. Packet users also need a VHF radio transceiver, costing another $300 or so.

Licensing Requirements

The greatest obstacle facing any prospective radio-computer operator is obtaining an amateur radio operator's license. To acquire a license, the applicant must pass a test proving knowledge of both Morse code and radio theory. The test is written by the Federal Communications Commission; examinations are conducted by hundreds of local amateur radio clubs. Most clubs also offer a training course for a nominal fee.

To send VHF packet radio transmissions, you'll need to obtain a Technician-class license. Requirements for this license include a knowledge of the Morse code at a speed of five words per minute (really very slow) and some general knowledge about electronics and radio theory. While not exactly a piece of cake, people as young as eight have managed to pass this test with flying colors. If you can figure out how to operate a personal computer, you should have no problem acquiring the knowledge for a ham radio license — if you're willing to devote the time. Incidentally, the FCC has recently proposed dropping the Morse code requirement and establishing a separate license grade for computer users, but at press time the introduction of any such "Digital-class" license appears to be at least one or two years into the future.

The license needed to operate one of the long-distance shortwave mailboxes — the General-class permit — is somewhat more difficult to obtain. The license requires the same technical test as the Technician license, but calls for a 13-word-per-minute Morse code knowledge. Other amateur licenses include the Advanced and Extra-class permits. Neither of these licenses convey additional digital privileges.

Further Information

If the brave new world of wireless networking interests you, help is no

Continued on page 48

COMPAQ:
A Computer for the Road

COMPAQ Computer Corporation
20333 FM 149
Houston, TX 77070
(713) 370-7040

List Price: $2,995 with 128K memory and one disk drive

Reviewed by Ernest E. Mau

After nearly six years working exclusively with 8-bit computers, it's strange to be using and writing about a 16-bit portable.

I chose the COMPAQ Portable Computer for my entry into this new realm, attempting to satisfy simultaneous needs for both portability and compatibility with IBM Personal Computers. After examining several systems, the COMPAQ seemed to meet my dual requirements, and it's provided both pleasant and not-so-pleasant surprises.

Let me explain that the COMPAQ is not portable in the sense of a lap-size or briefcase-style computer. It's not a machine you're likely to use at the airport or on a bus. Instead, it's transportable in the sense that it's been designed to be carried from place to place and set up with minimum effort. The entire machine has been engineered with transportation in mind.

The outer case is lightweight but durable Lexan, surrounding an inner case of interlocking metal plates that provides radio-frequency (RF) shielding and offers additional protection for the electronics against any objects that somehow might penetrate the outer case.

Unlike several other units I've seen, a COMPAQ doesn't leave anything on the outside where it would be subject to damage in transit. While other units often mount one or more of the power cord, fuse holder, video brightness control, and power switch on the outside of the case, the COMPAQ conceals everything. A sliding panel on the right side covers and protects the interface connectors. A panel on the left side covers a power receptacle, cooling-fan, fuse holder, and power switch while providing a storage compartment for the power cord. The video brightness control on the front panel is covered by the keyboard.

When closed, the COMPAQ bears a remarkable resemblance to a portable sewing machine, being about the same size and shape. However, it's somewhat lighter than a sewing machine, weighing 28 pounds with a single disk drive or about 33 pounds with two drives. The padded handle and even weight distribution make it easy to carry and stow in cars, buses, or airplanes. However, an optional padded case is recommended for extensive travel or storage in particularly inconvenient places like underneath an airline seat — the extra protection is well worth the small added cost.

Operationally, the COMPAQ emulates an IBM PC. It doesn't claim to be an IBM machine, but it's behavior and performance are as close to the IBM as is possible without being a copy. The manufacturer claims that most IBM plug-ins, peripherals, and software will run on the COMPAQ, and they do. What's more, they run without having to be converted. As of August 1983, COMPAQ's list of tested software included some 300 major programs. And, most IBM PC software arriving for review by this magazine also identified the COMPAQ as an acceptable computer.

Thus far the only thing that hasn't run is the Advanced Basic that IBM provides with their disk operating system (DOS). PC DOS 1.1 runs well, having been purchased separately. PC DOS 2.0 hasn't been tested, but it's intended primarily for the IBM XT with its hard disk and probably wouldn't offer that much advantage on a COMPAQ without a hard disk. It's long been established that IBM's Basic uses a Read-Only Memory (ROM) not available in the COMPAQ. However, COMPAQ's Basic has run all application programs tried so far that were originally intended for IBM Basic. Since it's a simple matter to put COMPAQ's Basic onto a copy of an IBM PC DOS disk if needed, nothing is really lost.

Of course, there's always a chance of encountering some program that won't work, with the most likely problem being a reference to ROM-based routines in the IBM PC. However, I've personally encountered no other programs that failed to run.

I've also been using the Digital Research CP/M-86 operating system without any problems. Its current low price ($39 through mail order houses) made it a worthwhile purchase, but its incompatibility with 8-bit CP/M-80 hasn't done much to ease the transition problems from one system to the other. Compiled or machine-language programs aren't transportable from one to the other. Source-code programs can be transferred, but extensive and time-consuming modifications are required.

Under test, it seems that COMPAQ Basic is enough like conventional Microsoft BASIC-80 that most programs written in that language on an 8-bit machine can be transported to the COMPAQ with little or no difficulty. The only real programming differences appear in screen handing and added graphics capabilities on the COMPAQ, so all I've had to do is change the "clear screen" code to make them operational.

Making a Basic program efficient may be more complex. There are significant timing differences between BASIC-80 and COMPAQ Basic. Consider this little array-swapping routine:

```
 10 CLEAR:DEFINT A-Z:N=7500:DIM
    A(N),B(N)
 20 FOR X=1 TO N:A(X)=X:NEXT
100 FOR X=1 TO N
102 B(X)=A(X)
104 NEXT
```

COMPAQ Basic took 44.8 seconds. BASIC-80 on a 4MHz Z-80 computer took only 39.3 seconds. Here, the COMPAQ took 14 percent longer to complete the run.

Some simple arithmetic operations showed different results, as in the following two examples:

Example 1

```
10 FOR X=1 TO 15000
20 Y=(2*3*4*5)*(2*3*4*5)
30 NEXT
```

Example 2

```
10 FOR X=1 TO 15000
20 Y=(2*3*4*5) 2
30 NEXT
```

In the first example, the Z-80 computer completed in 129.0 seconds, while the COMPAQ took only 106.5 seconds. Here, the Z-80 took 21 percent longer. In the second example using exponentiation, the Z-80 required 484.6 seconds, while the COMPAQ needed only 108.6 seconds. Where exponentiation proved costly on the

Z-80 machine, almost quadrupling the time, it added virtually nothing to the time with the COMPAQ. Obviously, there are internal differences in the interpreters, so some experimentation is needed to find the most efficient programming techniques.

As a full-featured computer, the COMPAQ offers several advantages. Most notable is the inclusion of things that are extra-cost options on an IBM PC. The purchase price includes 128K of Random-Access Memory (RAM), the 9-inch monochrome video display handling 25 lines of 80 characters, one disk drive, and the interfaces for a parallel printer, an NTSC composite-color monitor, and an RGB color monitor.

In other words, the functions of the IBM Color/Graphics Monitor Adapter and the Parallel Printer Adapter are built into the COMPAQ already. Unlike the IBM, the COMPAQ can run programs designed for color display without additional hardware. Such programs only display as varying tones or patterns on the monochrome screen, but they are usable. The presence of the color interfaces makes it easy to attach a monitor or, with an adapter, a television set to get full color when needed.

With all that, the COMPAQ still has three peripheral slots available for added plug-in expansions. I've used one for an IBM Asynchronous Communications Adapter, which has worked perfectly for driving a serial daisy wheel printer and a variety of external modems. The remaining two slots in my system are reserved for adding an internal modem for convenience when traveling and a Z-80 co-processor to run CP/M-80 and access the data and programs available on my other systems.

The memory, already at 128K on a standard unit, is expandable to 256K on the main board by adding two 64K "chips." Since they only cost about $99 each, I considered it a worthwhile modification at the time of purchase and recommend it to others. The added memory allows some programs additional working room and may be used as a small disk buffer or RAM-disk emulator with the appropriate software. The computer can handle up to 512K of memory, with memory above 256K usually provided on an expansion circuit board.

The extent of expandability is remarkable for a portable computer, and it assures the buyer that the machine can be adapted to future needs without quickly becoming obsolete as the applications change.

The disk drives are double-sided 320K drives. The diskettes may be formatted as either single- or double-sided, with single-sided formatting often allowing for direct transfer of text or data files between otherwise incompatible computers. A few newer 8-bit machines have the capability of reading or writing PC DOS single-sided diskettes, so this feature can come in handy. I've used it extensively, copying the transferred data to or from double-sided diskettes as needed. I've also noticed that the drives are "shock mounted" in the chassis, so they are protected against damage in transit. The drive doors are a bit stiff and difficult to close, but it seems to be a design trade-off to assure they won't pop open in transit.

The keyboard follows the IBM PC layout, with all the pros and cons that implies. It uses the same key arrangement, which many users have grown to dislike while others love. It's not as heavy a keyboard, however, and the keys aren't as high (deep) as the IBM though they are sculpted the same way. There are no mechanical "click stops" to the COMPAQ keys. Although an electronic simulation of key clicks is possible, that's not the same as the tactile and audible feedback provided by a mechanical action. Furthermore, the keyboard is not interchangeable. At present, alternate keyboards for the COMPAQ aren't available; since the keyboard is permanently wired and not plugged into the computer, it's not likely they ever will be available.

There are, naturally, some things I don't like about the COMPAQ. None are considered "fatal" flaws, but they do tend to be irritating.

The most serious problem is the lack of bundled software. The system comes with a disk operating system, some DOS utilities, COMPAQ Basic, and a few demo programs. That's it! It's hardly an operational applications system, and it has a severe disadvantage when compared to other computers that include word processing, da-

tabase management, spreadsheets, and so on. COMPAQ buyers have to be prepared to spend anything from several hundred to several thousand dollars extra to build a minimal applications system and do anything constructive with it.

The documentation is substandard, and I consider it downright inadequate. Sure, it tells how to turn the machine on and off. It even describes the DOS commands and utilities, though it's sketchy about that. I bought PC DOS 1.1 just to have a better explanation of the commands, which happen to match those of COMPAQ DOS. In three manuals provided, nothing is really said about the hardware, not even any instruction on how to open the case and access the peripheral slots. There are no schematics, meaningful troubleshooting guides, or other aids I've come to expect with other systems.

The video display is slow to recover, resulting in bothersome after-images. It takes from five to 10 seconds for an image to fade completely, depending on the original intensity. With rapidly scrolling text, each character has a tail like a comet that partially obscures the characters below. This makes it hard to read the screen during network communications, quick text scans with a word processor, and similar applications. Rapidly changing graphics can be even worse, sometimes leaving three or more levels of latent images on the screen at once. Yet the after-images are less of a problem than the technique used by at least one other portable that blanks and restores the entire screen for each line scrolled — such flashing on and off was so disconcerting, I rejected that portable for that reason alone. Still, be prepared for some eyestrain during periods of intense screen activity.

The drives pose another problem. It's easy to have the write-protect notch of a diskette hang up on the front-panel below the drive opening, especially when removing a diskette. Unless the leading diskette edge is shifted upward while removing the diskette, the notch hangs. This poses two dangers. One is to the diskette, which can be damaged. The other is to the machine, which could be dislodged from a work surface by an over-eager pull on a diskette.

Both the computer and keyboard have "pop out" legs that can tilt them in an effort to achieve comfortable angles. Only two positions — elevated or not elevated — are possible, however. Neither position is right for me, and I wind up adding books under the legs of the computer to get a satisfactory viewing angle on the screen.

I also find the coiled cord on the keyboard too short and too rigid. It's not long enough to achieve any significant separation between the keyboard and computer, and, if extended more than a couple of inches, tends to pull the keyboard back toward the computer. When attaching the keyboard for transport, the cord is supposed to retract into a receptacle on the front panel, but it frequently interferes with the latching mechanism.

My final comments concern reliability. The COMPAQ I'm running now is my second unit. The first one survived only four hours from the time I got it home. I had broken my own rules about insisting on a 72-hour dealer burn-in before accepting delivery and let myself be talked into a fast dealer checkout. In the first three hours I had it, I started seeing frequent disk errors. Although the diagnostic program included with the system showed nothing wrong, I shut down and returned to the dealer the next morning. Within an hour on the technician's test bench, the unit "died." I was issued a new unit, and it has run reliably.

I don't recommend accepting one of these machines in a sealed carton or after just a fast checkout. Sure, the unit that failed on me may have been the one bad one in thousands, but it did happen and tells me that a burn-in period is essential. I've also seen several units come out of cartons with improper video adjustments — some so severe the status line in Basic wrapped off the bottom of the screen. As far as I can tell, a unit that runs for several days probably will give extended service without incident, but be careful of those early failures and try to make them happen at the dealership.

I can say that I'm generally pleased with the COMPAQ. While it probably won't replace my 8-bit systems for everyday work, it opens some new horizons and promises to be a practical tool in applications requiring access to IBM PC software or a need to take a computer on the road.

BMC COLOR MONITOR

BMC USA Inc.
450 Barell Ave.
Carlstadt, NJ 07072
(201) 939-7079
List Price: $329

Reviewed by Fred Blechman

If you like quality and reliability in an attractive package at an attractive price you'll like the BMC Color Monitor from BMC USA Inc.

The BMC is used in place of a television set with a color microcomputer system. The BMC BM-AU9191U 13V Color CRT Display, as it is officially designated, has a 13-inch diagonal screen set in a light beige, highly stylized, ventilated and sloped cabinet. It is 14¾-inches wide, 13½-inches high, 16½-inches deep, and weighs a hefty 25 pounds. There is no carrying handle on the top, though it would be a welcome addition.

All the controls are conveniently located at the front. A heavy three-wire power cord plugs into a standard 120 volt 60 Hz wall socket, and the unit consumes about 60 watts in normal use.

It is made in Japan for use with NTSC video signals. There is no RGB input. A built-in audio amplifier provides up to one watt to the three-inch round speaker mounted on the right side. The video and audio input jacks are standard RCA-type phono jacks conveniently mounted near the top of the monitor on the back. The resolution is rated at 350 lines vertical and 350 lines horizontal, so it can easily handle 40 characters on a line.

I tested this monitor with a Timex 2068 Personal Color Computer and various video equipment. With the 2068, I used the regular video cable supplied, but instead of going to a TV/Computer switch box, the cable simply connects from the 2068 Monitor output jack to the video input jack on the monitor. I used another similar cable for amplified sound from the Timex 2068 "MIC" jack. (Although the 2068 has its own speaker, it is small and not very loud.)

The BMC push-type on-off switch is just below the display, and when it's turned on, a red pilot light comes on

next to the switch. The display comes on very quickly — in less than five seconds. Seven thumb-knob controls just below and behind the front panel are clearly marked: V-HOLD, H-CENTER, BRIGHT, CONT, TINT, COLOR and VOLUME. All the controls work smoothly.

It is particularly nice to find that the TINT and COLOR controls have a very broad range. Together with BRIGHTness and CONTrast, I felt much more in control than with two other color monitors I've used that had limited range. The BMC displayed exactly the colors shown on the TIMEX 2068 keyboard.

The 32-character-per-line display is sharp and clear, right out to the screen limits. Some intereference was noted with a full screen of text or when using poor printing color/background color combinations, but that was caused by a slight misalignment of the Timex 2068 and not the fault of the monitor. I found no degradation or undue heating even after several hours of use. The sound amplifier was perfectly quiet (no bothersome hum), yet loud and clear when the volume was turned up.

The Timex 2068, unlike most low-priced computers, has a 64-characters-per-line mode. I put some text on the screen in this mode and found the characters readable, but just barely. This is obviously not a high-resolution monitor, and I would not recommend it for use with more than 40 characters on a line. However, BMC has two other models (the MB 9191MU and the BM 8181) for high resolution needs — at higher prices.

I also connected the BMC monitor to three video recorders and a color video camera. No special adapters or interfaces were needed. The picture on the BMC was markedly better than the same picture on any of my four color television sets — including one I always thought had a perfect picture!

Except for the expected medium resolution restriction and no carrying handle, I couldn't find any faults with the BMC — not even the price.

MIST:
A Foggy Approach to Networking Tools

New Era Technologies Inc.
2025 Eye Street N.W., Suite 924
Washington, DC 20006
(202) 887-5440 or (800) 368-5787
List Price: $375 ($225 without DBMS functions)

Reviewed by Ernest E. Mau

MIST, an acronym for Microcomputer Information Support Tools, is represented as an easily used "networker's electronic toolchest." This hybrid software integrates word processing, database management, and network communication for CP/M-based or MS-DOS microcomputer systems. It can be tailored to a user's system and application and even allows one computer to control the word processing and database management functions of a remote computer.

Word processing

Word processing takes place in what's called a "scratchpad." That describes the capabilities — a limited scratchpad in which text editing and formatting can be done. I wouldn't call it a word processor in the conventional sense. Instead, it's more like a text editor with formatting and printing provisions.

This line-oriented editor handles text as individual numbered lines. It is not a screen-oriented processor where paragraphs, pages, or whole documents are continuous blocks. Users familiar with the ED.COM editor provided with CP/M or the FILGE editor of the CompuServe Information Service have seen a line-oriented editor.

The line-by-line approach has one advantage. It allows a computer to access, edit, and manipulate text in a remote computer via a communications link. Numbered lines make such manipulations easy from a programming standpoint, since text can be altered, moved, deleted, overwritten, or otherwise massaged using known points of reference. It eliminates sophisticated screen formatting and updating procedures that would be time consuming and impractical between two computers.

Yet line-orientation has major disadvantages. The biggest is that it's cumbersome. One simply cannot send a cursor scooting around the

screen to locate words or groups of words. Instead, it's necessary to call up lines or groups of lines by number and apply complex command structures for editing. In MIST, those commands may involve many keystrokes and may not resemble logical sequences for which other processors strive.

To illustrate, MIST uses a colon to display lines, an equals sign to "go to" a line, slashes for replacements, a right arrow to insert, an asterisk to delete, and an ampersand to copy. These are accompanied by other symbols, line numbers, and characters to define the range or conditions over which the command operates. A command like ":1-20" displays all lines from 1 through 20. Meanwhile, a command like "/waist/waste/– +" performs a "global" replacement of "waist" with "waste."

Considerable time is lost just managing commands and entering all the keystrokes in the right order at the right time. The number of keystrokes also allows more frequent and potentially more damaging errors in manipulation than some screen-oriented systems. The tendency to perform alterations "blind" to save time by not going through intermediate commands and displays increases the chances of damage.

Nevertheless, the MIST scratchpad has useful features. Things like global searching and replacing, moving lines, extending lines, and inserting lines all are provided. Embedded commands for printout formatting also are provided, thereby controlling page breaks, margins, spacing, underscores, boldface, and other functions supported by the printer. There's even a preview function to display on the screen what would be printed on paper, showing the effects of formatting commands before committing to hard copy.

Text may be sent to another computer with the communications provision included in MIST. The scratchpad is limited, however, by computer memory. On the 64K S-100 test system, the scratchpad held exactly 300 65-character lines. At 55 lines per printed page, that's 5½ single-spaced pages. Enough for letters, brief reports, and most electronic-mail, but too little for convenient preparation of manuals, book-length manuscripts, or major articles. The specifications state that the limit is 300 lines or 10,000 characters, whichever occurs first.

Being compatible with ASCII files, the scratchpad can be used with many other word processors. Long text prepared and segmented outside MIST can be read piecemeal into the scratchpad, reprocessed as necessary, and stored as new files. In fact, MIST text handling is of most value when paired with another processor, preferably one with screen orientation.

Database management

The MIST database is called the "resources system." Like the scratchpad, the system is structured for network usage. To facilitate remote access to and manipulation of the database, it uses a line-by-line presentation of the parts of fields in a record, not the page-by-page or screen-by-screen approach gaining popularity in some other systems. Again, this has the advantage of not needing sophisticated screen update techniques or wasting time in transmitting full screens from one computer to another.

Because databases may contain sensitive entries, "locked" or "unlocked" databases may be used. When locked, each field can be assigned both read and write access levels, requiring individual passwords for levels before a local or remote user can reach them. Up to eight access levels can be imposed on any field to restrict access as necessary. These are separate from the primary access and passwords used to get into the MIST system as a whole.

Structure and operation of the database is not far from conventional approaches. Parts or fields are defined according to contents and size, just as in other systems. Once defined, records are added by answering the named prompts that appear on the screen. Typical data manipulations include the ability to add, locate, sort, modify, remove, and otherwise handle records or groups of records. Boolean combinations involving AND, OR, and NOT conditions are usable in searching for records.

Templates can be devised and applied, forcing parts of records to be reordered or excluded for display, transmission or restructuring. For the most part, the database appears flexible and usable. There are problems however. One is that it's extremely difficult to alter the size of any field. Make a mistake in first stating the size and it may be necessary to create a new database from scratch. While there are provisions for outputting the database records as a text file, altering the size and order with templates and a word processor, and reading the old data into the new structure, it's difficult at best and may not work all the time.

Aside from difficulty handling the command structure of the resources system, my main complaint involves disk utilization. The system can waste considerable storage space since every character location of every field is allocated a position whether filled or not. Where some systems use "delimiters" to mark and pack fields at high density, MIST leaves lot of blank space.

I tried converting a database created under MicroPro's DataStar system. It wasn't easy and isn't a recommended procedure. The original had 384 records, each with 85 fields from a single character to 60 characters long. My first problem was running out of space in MIST to define the new database, running into the 750-character limit on field names.

Paring down the old version by about 20 percent got it to read. The records occupying 106K under DataStar required 276K with MIST. That's 2.6 times the space to hold only 80 percent of the original database and didn't include disparities in the associated indexing files. Naturally, the fuller the records, the less difference in storage space, though this is typical of the packing in my applications.

With low-capacity disk drives, MIST may quickly exhaust available storage space with large databases. I see it as attractive for simple record keeping and low numbers of individual records, not for large data collections typical of serious business applications.

Telecommunications

The "connect mode" or telecommunication function has been designed specifically for MIST-to-MIST operation between computers. It takes some bending and stretching to adapt for bulletin board services and networks such as CompuServe.

The trick is to learn how to create disk files that set up communication parameters, control auto-dial modems, and conduct automatic logon

procedures. With such files, commands may be embedded to set the baud rate, toggle the input of control characters, switch between full- and half-duplex, toggle automatic line feeds, set parity, set data bits, establish "wait" intervals, alter the XON and XOFF protocol characters, and so on.

The number of choices makes the system flexible. However, some protocols are not supported. One example is the CompuServe protocol for uploading or downloading with error checking. In fact, the MIST system does not support any error-checking methods if not using two MIST systems. Aside from a straight XON/XOFF flow control, there is no apparent recognition of "checksums" or "CRC characters." It also lacks the "slow BBS" feature found in other programs to insert transmission time delays between characters and between lines to accommodate slow response times in the receiving computer.

At least one command is not documented in the manual or on-screen help menus. Guidelines provided by the supplier for CompuServe logon used a complicated sequence of switching between full- and half-duplex. CompuServe does not echo passwords, but MIST waits for character-by-character echo in full-duplex. Without echo, the next character is not sent. To overcome this, logon started in full-duplex until asked for the password, switched to half-duplex to enter the password, and switched back to full-duplex to eliminate double characters (one local plus one echoed). A real nuisance!

After searching the manual and menus for any way to switch off the echo detection under full-duplex, I got frustrated and typed the command "no echo." Bingo! Echo waiting switched off, making it unnecessary to bounce between duplex settings. That command isn't mentioned anywhere, and the manual insists that MIST always waits for an echoed character in full-duplex.

Incidentally, echo-waiting is not a satisfactory protocol for uploading to CompuServe. There are conditions under which CompuServe computers will echo characters but not record data. That's happened with various communications programs and long text or program files. It's overcome by using CompuServe protocol or inserting time delays between characters and lines — neither is available in MIST.

Without a MIST-to-MIST link, I don't see any advantage to the program's communication facility over that of other programs. For general-purpose networking, I rate this one low in the order of preference and prefer some public-domain programs.

Acquisition and installation

Since I encountered difficulties acquiring a running version of MIST, fairness to potential users demands that I report them.

It took several months to obtain a working version. MIST was available only for a 300-baud Hayes Smartmodem or PMMI MM-103 modem. Others were "being developed," but I've not received any word that they have become available. I intended to use the Smartmodem on an S-100 computer. However, the computer has a software-controlled input/output structure not easily accessed in some applications. MIST must be configured by the supplier for the equipment being used, and they spent several months trying to develop a system for my hardware. It never was provided, and I had to acquire the PMMI modem to bypass the problems and switch to the alternate configuration. Now, with PMMI modems no longer being marketed (see the Monitor item, page 12 in the November issue), the available configurations are limited further.

Being preconfigured by the supplier, a user does not have any way to alter hardware parameters. The input/output port control, modem commands, and terminal functions (screen clearing and highlighting) are not subject to user changes. That means a given version cannot be expected to run if the port, modem, or terminal change. In two years, I've changed terminals five times and acquired a half dozen modems used interchangeably. A program that ties the computer to one terminal with one modem is restrictive. That's especially true if a terminal or modem malfunctions, taking the entire MIST system out of operation.

Conclusions

On the surface, MIST appears to offer a great deal, especially for dedicated networks such as might exist between offices or companies conducting business from computer to computer. The integration of word processing (text editing), database management, and communications is an excellent idea. However, the implementation in MIST leaves much to be desired. Each of the functions works,

but each seems a compromise and of limited usefulness. None of the three match the capabilities of stand-alone packages that could be acquired and used separately.

The ability to tailor the program may help some users. Such tailoring includes defining new commands, renaming old commands, setting up sequences that perform operations automatically, altering menus, and others. Yet such tailoring can be tricky and should be avoided until completely familiar with normal operations and commands.

Contrary to the supplier's claims, I do not find MIST particularly easy to use. The 380-page manual doesn't help much. It's neither an effective tutorial nor a usable reference book, seeming more like a rambling narrative. The information is there, but finding it when you need it is difficult. It's short on examples and practical illustrations, and often doesn't follow the flow of normal operations.

I have to question the general utility. As a writer spending many hours a week preparing, transmitting, and tracking manuscripts and other materials, I'm sensitive to matters of working time, disk storage, and machine efficiencies. MIST does not meet my needs and falls short of what I seek among day-to-day tools. In an office where work can be structured to meet its limitations, it might function well. Even then, it probably cannot accommodate all text, data, and communications needs, so it should be used with, but not in place of, single-function programs.

Originally, MIST carried a price tag of $1,500, costing more than some competent microcomputers that could run it. In October 1983, the price was reduced to more realistic levels, with a $375 package providing all the functions but no follow-up support, extras, or other "frills." A version without the database (resources) section also became available at $225. This reviewer considered the original price out of line for a package of this type, but the new prices make it far more attractive and worth consideration by serious network users. Nevertheless, a cautious approach is recommended in assessing the capabilities of this program. Try before you buy is a good motto, and be sure to try your worst-case applications.

Ernest Mau is a contributing editor of TODAY.

MOVE-IT:
An Intercomputer Transfer Utility

Woolf Software Systems
23842 Archwood Street
Canoga Park, CA 91307
(213) 703-8112

List Price: $125

Reviewed by Ernest E. Mau

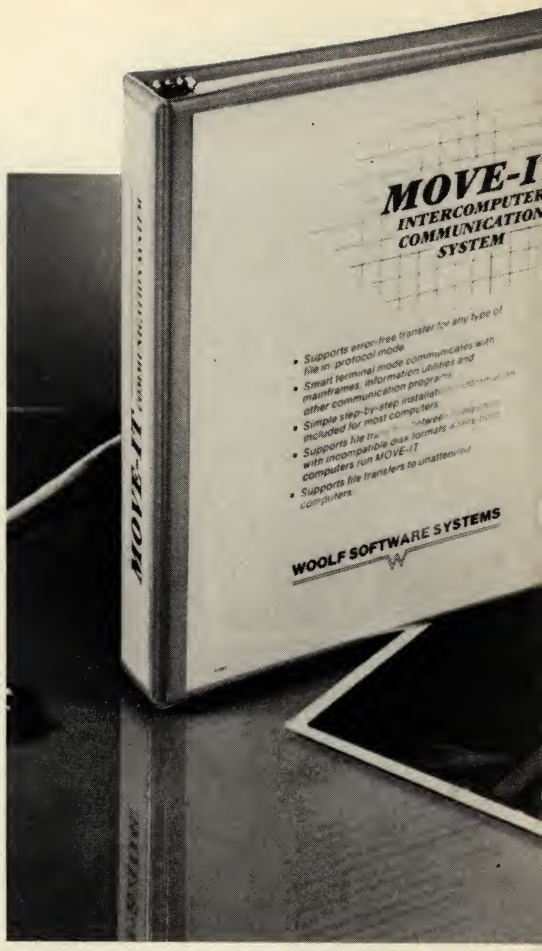
When adding a new computer or replacing an old one, there's a serious problem. How can data and programs from one system be transferred to the other? Contrary to what some computer salespeople might have you believe, software is not expendable. A package called MOVE-IT from Woolf Software Systems offers one solution for CP/M-based systems.

The supplier calls MOVE-IT an "Intercomputer Communication System." They claim error-free file transfers, the ability to move files between computers having incompatible disk formats, facilities for communicating with information networks, and even control of a connected but unattended computer. Those claims aren't idle boasts or advertising come-ons. MOVE-IT does all those things and more, giving this reviewer some pleasant surprises.

The first function of interest is the transfer of data and program files from one machine to another. For test purposes, the goal was to move files in various directions among a CP/M-equipped Apple II Plus with 5¼-inch single-sided drives, a desktop CP/M computer with 5¼-inch double-sided drives, and an S-100 system with 8-inch drives. Three incompatible disk systems!

There's an immediate problem. MOVE-IT has to talk to MOVE-IT. That is, the program must run in both machines for this application. The supplier provides information on transferring MOVE-IT into a computer not having a communications package, but I found a different way with a telephone link to a private working area of a network, recapturing the program via a modem.

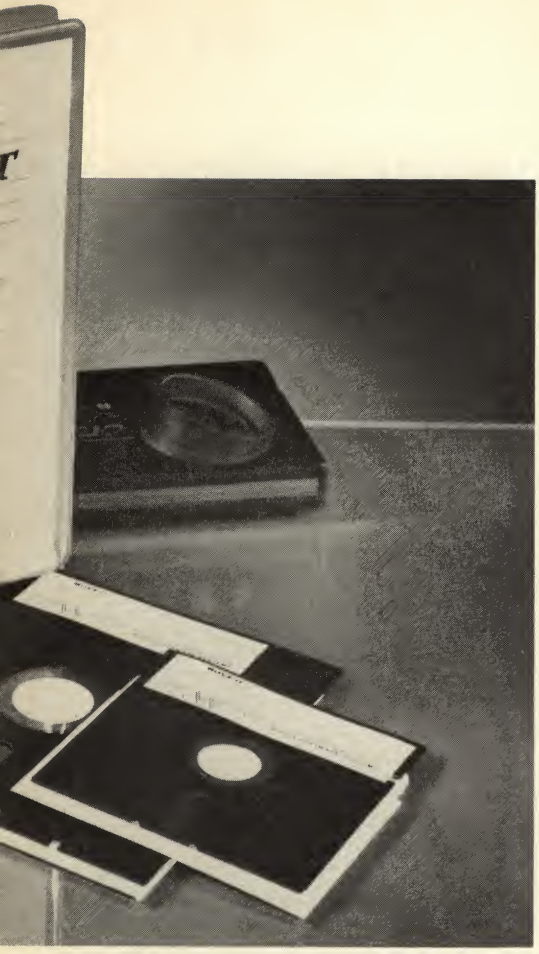
The supplier also provides instructions for constructing an RS-232 serial interface cable and detailed installation parameters for more than 55 computers, interfaces, and modems, though they did omit my S100 system.



The system in question has a particularly difficult input/output structure not accommodated by normal software installation procedures. However, a phone call to Woolf Software got quick service and a customized program patch for that system.

Once installed on each machine, MOVE-IT is easy to run. Call the program on both machines at the ends of the cable, and all operations can be controlled from either machine. Those operations include looking at local and remote directories, sending files to or getting files from the other system, renaming files or reassigning drives between the sending and receiving ends, and so on. CP/M "wild cards" are in effect, so a command to "GET *.*" transfers all files from the remote system to the local system, while "GET *.BAS" transfers all BASIC program files.

Transfers may be at any baud rate supported by the two computers, and I've successfully done them at 19,200 baud across a 100-foot RS-232 cable without transmission errors. A 16-bit "checksum" technique assures accurate data transmission even at high speeds and over long cable runs or "dirty" telephone lines. Theoretically,



19,200 baud should transfer about 64 times faster than typical 300 baud communications, and 16 times faster than 1200 baud lines. However, that's not always a true measurement because other factors like disk access time, error checking, and the like affect the overall rate or "throughput." Notably, 19,200 baud only gained about 24 percent over 9,600 baud on the test systems instead of the expected speed doubling because disk accesses began to interrupt transmissions at those speeds.

Some interesting capabilities are included. MOVE-IT not only allows files to be transferred, but also permits messages or instructions to a remote operator. By creating and sending a CP/M "submit" file, one can even control other operations and run external programs on the remote system with automatic return to MOVE-IT when those tasks complete. It also notifies the user when a file already exists at the other end, when directory space is filled, when a disk is filled, and so on.

If communication between directly interfaced computers isn't enough, MOVE-IT also is a capable program for telephone-line modems and virtually all networking applications using modems. Its one limitation is that standard configurations support the automatic dialing functions of only the Hayes Smartmodem and Bizcomp modems. Yet in "talk" mode, many other modems can be used, whether a plug-in circuit card or an external modem operating through a serial interface port.

When connected to an information service such as CompuServe or to a bulletin board (BBS) or remote CP/M (RCP/M) system, the user has several methods by which to capture or transmit information. The user can simply talk to the other system by typing at the keyboard or can send and receive whole files at any baud rate supported by the network. For file transfers, there is full control of echo handling, parity, full- or half-duplex, and automatic line feeds. There's also a choice of several communications protocols including waiting for each character to be echoed, waiting for a specific response character, "wait intervals" between characters or lines, XON/XOFF transmission and recognition, or no protocol at all.

While MOVE-IT does not directly support CompuServe's proprietary "executive" protocol for uploading and downloading files, most normal use of the CompuServe system can be accomplished with other methods. Downloading or retrieving files from a system like CompuServe is never a problem, but uploading or sending long files to the network may cause some difficulties when the system is busy and long wait intervals are imposed frequently.

Throughout, I find nothing in MOVE-IT about which to complain. For either computer-to-computer communication across a hard-wired interface or computer-to-network communication through a modem, it has functioned flawlessly. It's allowed my own separate systems to be set up as a simple type of local area network, sharing information freely between computers and increasing my utilization of the machines.

If you've ever faced the problem of intercomputer communication, take the time to look into MOVE-IT as a possible remedy.

THINKTANK

Living Videotex Inc.
450 San Antonio Rd., Suite 56
Palo Alto, CA 94306
List Price: $150

System Requirements:
Apple IIe: 64K memory, two floppy drives or hard disk, Apple or Extended 80-column Text Card.
Apple II Plus: 64K memory, two floppy drives or hard disk; display limited to 40 column upper case only.
Apple III: 96K memory, two floppy drives or hard disk.
Note: II Plus or IIe hard disk versions require the Apple Pascal software package. Other versions, including one for the IBM PC, may be available.

Reviewed by Bernie DeKoven and Don Lloyd

ThinkTank, by David Winer and Jon Llewellyn, represents a significant advance in word processing. So significant in fact, that *ThinkTank* should be thought of as an idea processor rather than as a word processor.

ThinkTank is an electronic outliner. It enables you to enter, edit, and rearrange headings (which may contain any number of subheadings, subsubheadings, etc.) or paragraphs. The display may be collapsed to show just the major headings. Or, move the bar cursor to a selected heading and "expand" it, revealing all the second level subheadings. You may then choose to further expand one or more subheadings, or to "collapse" the display back to the primary outline.

The documentation, a 228-page manual written by John Unger Zussman and David Greene, is excellent. In addition, Winer and Llewellyn have devised a method for making online help immediately available to the novice, yet unobtrusive to the expert. You can operate from an annotated menu or take the fast track with single character commands.

The question arises: Why would anyone want a computerized outliner-maker? And the answer arises just as naturally after perhaps 30 minutes of playing with *ThinkTank*. What is often clumsy and tedious to do on paper becomes gracefully dynamic and extraordinarily efficient when done on the computer.

You can brainstorm. You can allow yourself to write everything that comes

to your mind, uncritically, knowing that eventually you'll be able to shuffle things around or flesh out ideas. But in the meantime, you can just let yourself go, being as chaotically disorganized as you please. You can do the same thing for yourself that big companies spend thousands of dollars to do: Become a one person think tank.

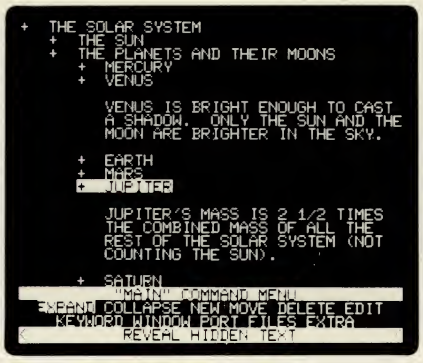
When you're finished, anyone who reads your document will find it much easier to assimilate. It becomes simple, using the headings, to filter through mounds of verbiage and quickly find those parts of your opus that are the most relevant. If you wish to climb to the very height of clarity, the *Tank* will take your report to a new level of reader-friendliness, capping off your brilliance with an elaborate-as-you-please table of contents.

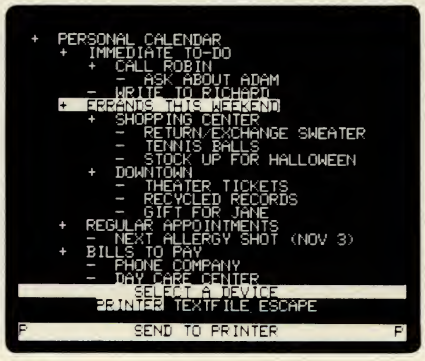
Since *ThinkTank* is written in Pascal, it requires the p-system runtime library, which is supplied. To run the *Tank*, you need not be familiar with Pascal. You can create your own custom *ThinkTank* commands and have them merged into the menu, but to do so you do need the Apple Pascal software package.

There are two places where I bump my head. The first is the 2,000 character limit on paragraphs, a limit partially imposed by the Apple p-system. The outline itself is kept in computer memory while you are working on it, but as each paragraph is entered, it is stored on the data disk. To return to a given paragraph, another disk access is required. Unless you have the hard disk version (or possibly the IBM PC version), the constant disk exercising may discourage you from using the paragraph editor. As the *Tank* is used primarily in generating and organizing headings and subheadings rather than paragraphs, the disk intensiveness is not a major drawback, though it would inhibit use of the *Tank* as a "normal" word processor.

My second objection is the multiple use of certain command names such as EDIT. The context in which a command appears defines its action, and after a while one becomes familiar with the different meanings. It would be a little easier on the first time user if the multiple-use command names had been distinguished.

The manual includes several tutorials (including one on the p-system) and full instructions on making


+ THE SOLAR SYSTEM
+ THE SUN
+ THE PLANETS AND THEIR MOONS
+ MERCURY
+ VENUS
VENUS IS BRIGHT ENOUGH TO CAST A SHADOW. ONLY THE SUN AND THE MOON ARE BRIGHTER IN THE SKY.
+ EARTH
+ MARS
+ JUPITER
JUPITER'S MASS IS 2 1/2 TIMES THE COMBINED MASS OF ALL THE REST OF THE SOLAR SYSTEM (NOT COUNTING THE SUN).
+ SATURN
"MAIN" COMMAND MENU
EXPAND COLLAPSE NEW MOVE DELETE EDIT
KEYWORD WINDOW PORT FILES EXTRA
REVEAL HIDDEN TEXT



backup copies of the original disks as well as of your outlines. *ThinkTank* has many advanced features such as PORT (save a *ThinkTank* file for use in another program), SEARCH, and SORT. There are also provisions for redefining the the single key commands and tailoring the system to suit your needs. For more sophisticated customization, Living Videotex will supply programmers' notes on file structure and other "internals."

The more you use *ThinkTank*, the more uses you find for it. Yes, it is very useful as a database. You can keep phone numbers, inventories, forms. But what I do with it most is juggle. I juggle ideas, projects and appointments. It allows me to play with concepts and plans the way VisiCalc allows the financial planner to play with different ways of structuring costs and benefits, investments and profits.

A(RCHIVIST):
A Disk Utility Program

Ecosoft Inc.
P.O. Box 68602
Indianapolis, IN 46268-0602
(317) 255-6476
List Price: $150

Reviewed by Ernest E. Mau

As a disk utility for CP/M or MP/M, Ecosoft's *A(rchivist)* has interesting possibilities.

Its primary use is backing up random files or copying files larger than floppy diskette capacity. Backups of large hard-disk files can be split between floppies when space at a destination diskette is exhausted. Sadly, this program function is not well documented.

A(rchivist) also provides enhanced versions of CP/M or MP/M utilities like DIRectory, STATistics, REName, ERAse, and TYPE. It includes a LIST command for hard-copy printing using formatting options, plus a COPY function operating on a selected range of files.

"Flags" or "switches" can control various operations. Copying may be verified or unverified. Potentially destructive operations like erasure or renaming may be flagged for prompting with "yes" or "no" confirmations before file removal or alteration. *A(rchivist)* can even control protection status, and can erase or overwrite protected files if so instructed.

Most features perform well and are useful. The best is the ability to function on an "exclusive" basis. That is, a command can be executed on all files EXCEPT those meeting specified conditions — something not in CP/M utilities. For example, STAT can list all files except those having .COM extensions.

A Z-80 microprocessor is required, with CP/M 2.x (or MP/M) and a 24 by 80 terminal having an addressable cursor. Optionally, a QT Systems clock board may provide time and date stamping when archiving.

Two problems! First, there were occasional failures in handling the screen display. They didn't affect the functions, but exit and re-entry was required to restore the display on an Ampex D125 terminal. Second, archiving failed on a system without a clock board when time or date were

entered manually — the program copied a short file and "hung," requiring a system reset. When time and date were not entered manually, operations proceeded normally.

The graphics mode does not preclude alpha-numeric characters. A related "alpha mode" creates a separate screen with characters that are scaled to match the graphics screen. Switching back and forth, you find that your last coordinate on one screen matches your current position on the other screen. The two screens may be merged at any time, so you can see what the graphics and characters look like together. And a number of software-generated character sets can be used.

While the program is compatible with any Tektronix graphics software, it is not limited to that format. Utility programs on the disk convert BASIC screens into TEKTERM screens. Applesoft BASIC programs can also be converted to transmittable text files, and the transmitted text file can be reconverted back to Applesoft BASIC. Other utility programs convert binary to hex and hex to binary, a useful option for those dealing with various different communications cards.

As a graphics transmitter, TEKTERM is unbeatable and probably unique. As an intelligent terminal program, it is usable — but less admirable.

The software-generated 70-column screen is easily readable on any professional monitor or "green screen." Those who use a television set as a monitor may find the lower-case letters illegible. This problem also applies to the graphics character screens. Small letters are difficult to read on a monitor; on a television, they become totally indecipherable. However, these characters may still be transmitted and printed out with no loss in resolution. If your printer has sufficient resolution, legibility presents no problems.

TEKTERM transmission speeds run from 110 to 19,200 baud. However, the 70-column screen is limited to 600 baud. While this is no problem on most computer networks, it presents a problem for direct computer to computer link-ups, so the high-speed rate is limited to Apple's standard 40-column, all upper-case screen.

TEKTERM's macro and text files are technically unlimited in length. Because the program does not incorporate its own word processor, however, long macro and text files must be written on a compatible piece of software, stored to disk, and then transmitted.

Despite these limitations, the program is easy to use. Most commands are menu-driven, and the menu may be called up without losing the terminal screen. Simple to write macros and good documentation round out an impressive software package. But TEKTERM's major lure is its graphics capability, which allows you to use an Apple in a way that no other communications package can. If you need to transmit graphics, this might be the perfect package for your computer.

TRANSFER:
A Profile Plus Utility

The Small Computer Company Inc.
230 West 41st Street
Suite 1200
New York, NY 10036
(212) 398-9290
List Price: $150, single model; $200, double model

Reviewed by Stew Schneider

TRANSFER is a utility by The Small Computer Company that transfers data generated by the Profile file system from a TRS-80 Model II or Model III to another Model II or Model III. TRANSFER works only with data generated by the Profile program.

The ability to transfer Profile data and key files from one computer to another in an office situation is vitally important. And particularly so if the office is equipped with both Model IIIs and Model IIs. TRANSFER should fill the bill for many offices admirably.

I didn't have access to a Model II, so I used a Model 12, a Model 4, and a Model III. Initially, there was some trouble getting the package to run on a Model 4. I consistently got the message, "DISK I/O Errors — no more extents", although the disk directory showed only one extent in the file. A call to the supplier indicated that the Model 4, in Model III mode, was supported. When I switched to a Model III, the disk errors stopped. I can only assume that the fault was hardware related, but cannot independently confirm that the package will work with a Model 4. There were no problems on the Model 12 functioning as a Model II.

Installation on either machine is quite simple. The command file is simply transferred from the distribution disk onto a Profile disk. The function may be installed on a user menu for calling from within Profile. Program operation is equally simple. From DOS Ready, the Model III operator types "TRANSFER". The Model II operator types "TRANSFER/EFC". In either event, the operator is asked whether he or she will receive or transmit.

The operator of the transmitting machine then must specify the name of the file to be transferred, and the operator of the receiving machine must specify the disk on which to put the file. The receiving operator also may specify whether or not to delete the file if it already exists. A "Y" answer replaces the existing file with the transmitted file. An "N" adds the received material to the end of the existing file.

TRANSFER takes care of setting communications ports and transmitting all data files associated with the named file. Reliable data transfer to 4800 baud was demonstrated through a null modem. If the link is broken, TRANSFER senses it and informs both operators, aborting the transfer and returning to DOS (or Profile if called from a user menu).

Each of the data files (and the key file, if specified) is transferred to the other machine with no further user input. If a file does not transfer properly, TRANSFER is smart enough to try again until it does. The actual transfer is accomplished quickly, and no errors were detected.

The only real weakness in the package is the documentation, which is a bit sketchy. The package comes in a three ring binder with a 5¼-inch and an 8-inch disk. The documentation does not specify that the receiving machine must have a Profile system installed in order to use the received data. Unless such a Profile system exists on the receiving end, the data can be received, but not displayed. It would have been better to have spelled this out clearly.

TRANSFER does its job quickly, competently, and reliably. It should be welcomed by businesses having several TRS-80s scattered about in several locations.

INTRODUCTION TO ELECTRONIC SPEECH SYNTHESIS

By Neil Sclater
Howard W. Sams & Co. Inc., 1983
Blacksburg Series
134 pages, $8.95

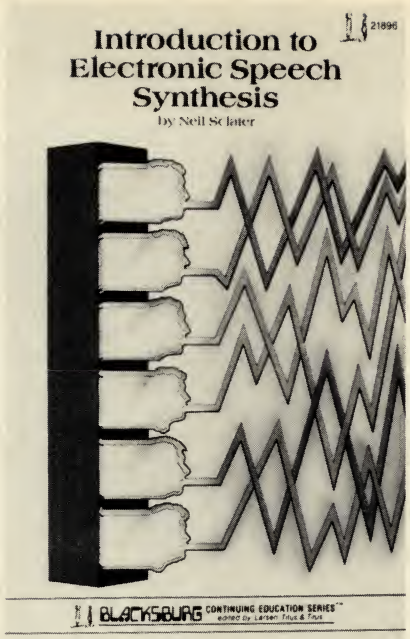
Reviewed by Don Lloyd

Coffee lovers will be amused by Neil Sclater's analogy describing the process of Electronic Speech Synthesis (ESS). A sample of real human speech is first analyzed then broken down and reduced to constructive elements or "freeze-dried crystals." Just add a speech synthesizer, electricity, and some miscellaneous software and hardware and you have something approaching a human voice. Of course, "approaching" is a key word here.

Freeze-dried speech crystals are called phonemes. They are the smallest element of spoken sound that can cause the meaning of the sound to change. For example, consider the word "tale," which is made up of three phonemes: the beginning "t" sound, the ending "l" sound (both consonants), and the vowel sound in the middle. If the vowel sound is changed from a stressed "a" (as in "pay") to an unstressed "a" (as in "artist"), there is a phonemic shift that changes the meaning of the word.

American English has about 40 primary phonemes: 16 vowel and 24 consonant sounds. Since phonemes are concerned with irreducible elements of meaning, they do not account for regional differences in pronunciation, or how some sounds change when they are enunciated in conjunction with other sounds.

It is this lack of detail in speech reproduction that gives rise to the mechanical quality of electronic speech. We hear it as hollow and lacking in expression, like an actor reading the script rather than speaking the lines. A great deal of research and development is being done to solve this problem, and that means there is a lot of money invested not only in the electronics aspect of speech synthesis, but also in the "front end" of ESS, namely, linguistics.



If the goal is to be able to store natural sounding speech in electronic memory and reproduce it automatically, why not just record the desired messages as uttered by an accomplished public speaker and store them digitally? One answer is presented very clearly in Sclater's introductory chapter. Digital sound requires anywhere from 48,000 to 96,000 bits per second for satisfactory results. Various forms of allophonic (expanded sets of phonemes) sound synthesis, which allows for some naturalness of expression, need only around 2,000 bits per second. A completely tokenized phoneme synthesizer can get by on 1,200 bits per second or less.

Sclater gives us a delightful if brief history of speech synthesis. Mechanical speech reproduction has been with us for quite some time and has involved such notables as Sir Charles Wheatstone, Alexander Graham Bell, Karl Gauss, and none other than Wolfgang von Kempelen. Apparently, von Kempelen came up with a pretty effective instrument in 1792, but a scandal earlier in his career kept his colleagues from taking him seriously: he was the inventor of the "chess playing machine" that consisted of a legless Polish war veteran hidden in a box. At the same time in history, Karl Gauss was working on a mathematical model that forms the basis of much of today's speech synthesis theory.

Sclater's chapter on applications is also a little thin. He discusses reading and spelling learning aids, industrial applications, safety systems, prosthetic voice generation and similar aids for the handicapped, and other uses in a compact, five-page chapter. Both the history and the applications sections would have benefited from the inclusion of bibliographies or suggestions for further study. It is perhaps a bit ironic that Sclater, after questioning the desirability of leaving linguistic research to commercial enterprises alone, fails to give any references other than the manufacturers themselves.

However, this is a slim, well written volume with a modest purpose, and it achieves that purpose exceedingly well. The second half of the book covers in some detail the real life ESS devices available from Texas Instruments, American Microsystems, General Intrument, Votrax, and Telesensory Speech Systems. The first half of the book provides you with more than enough background and theory to start on your own evaluation of the actual devices and divergent approaches designed by these five companies. The discussions are technical but non-mathematical.

CP/M PRIMER
(Second Edition)

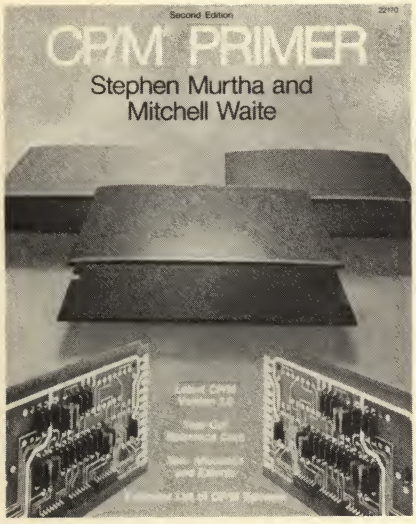
By Stephen Murtha and Mitchell Waite
Howard W. Sams & Co. Inc., 1983
150 pages; $16.95 (softcover)

Reviewed by Michael Conroy

With the proliferation of microcomputers, many first-time users are confronted with software that seems to be user-hostile and has incomprehensible documentation. CP/M from Digital Research has been an enormously popular operating system in terms of the number and variety of machines on which it has been installed, but it has earned the reputation of being difficult for novices to learn.

CP/M Primer by Stephen Murtha and Mitchell Waite has been successful in introducing new users to CP/M. The recently-released second edition is faithful to the 1980 publication's philosophy of explaining basic commands to those unfamiliar with DOS jargon. It should be noted that this new volume covers versions of CP/M through 2.2 and is not appropriate for users of CP/M Plus (a.k.a. 3.0).

The book begins by explaining the concept of an operating system, the history of CP/M and basic concepts of hardware and software. Unfortunately the history section does not elucidate the relationships of the different versions of CP/M that exist today.



The structure of CP/M and its resident commands are clearly defined. Commands needed to initialize disks and copy files are also carefully examined. However, the discussion of PIP, the command used to copy files, covers only its very fundamental applications. While a primer is not expected to cover all the uses of the commands, the space given PIP seems inadequate in comparison to that given other commands.

The discussion of STAT has been expanded. The authors explain not only how it can be used to check the status of files and disks, but also how to use it to set files to read-only, to check on user areas and to hide files from the directory command. Unfortunately, they do not explain how to undo this last action. Nor do they warn that some programs displaying disk directories will still display those hidden with the STAT command.

Entire chapters are still devoted to CP/M's editor, assembler, and debugging tool. The discussion of the text editor, ED, may not be necessary for those with more sophisticated text editors or word processors, but it does help in the understanding of how such programs operate under CP/M. The chapter on the dynamic debugging tool, DDT, is reasonably comprehensive except that the SAVE command, needed to preserve the effects of many of the described commands, is not detailed anywhere in the book.

A short chapter has been added to the end of the book on the use of the SUBMIT command, which allows CP/M commands to be treated in batch form. The placement of this chapter and the closing remark that it is a somewhat esoteric utility, indicate the authors' bias against SUBMIT, which in fact, may be more useful to novices than the editor, assembler or DDT.

While several errors from the first edition have been corrected, the book is still not perfect. The most obvious errors are on the cover of the book. For some reason, the cover text was not changed from the first edition. "Latest CP/M Version 2.0" now seems a little odd when 2.2 and 3.0 are on the market. The cover still boasts an "Extensive List of CP/M Software," which constituted an appendix in the first edition, but has been deleted from the second edition. Murphy's law of text correcting affected the example editor session; they corrected two errors from the first edition and four new errors were introduced.

As an introduction for new users the *CP/M Primer* is reasonably complete and understandable. Perhaps a third edition will correct the remaining errors and omissions.

THE PERSONAL COMPUTER IN BUSINESS BOOK

By Peter A. McWilliams
Prelude Press, 1983
287 pages; $9.95 (softcover)

Reviewed by Cathryn Conroy

The office of the future will probably include the traditional filing cabinets and desk, but there will also likely be an addition to eliminate some of the usual clutter of paper, pencils, calculator, typewriter, etc.: a personal computer.

Modernizing your office involves many big decisions — costing big money and with big implications. Here is where Peter A. McWilliams' *The Personal Computer in Business Book* is useful. Like its predecessors, *The Word Processing Book* and *The Personal Computer Book*, this latest twist on the theme demonstrates McWilliams' ability to uncomplicate a very complicated subject. With humor and style, McWilliams offers clear, concise and solid advice on how to purchase a personal computer for business.

McWilliams takes the reader on a sort of journey. Beginning with a brief definition of various computer terms, he proceeds to lightly touch on programming, how computers work, word processing functions, accounting, electronic spreadsheeting, data banks, electronic mail and teleconferencing, databases, and networking.

Each of these areas is, of course, important enough for an entire volume; thus, McWilliams' treatment is brief, considering he is discussing each in a mere chapter. The information offered is sound and accurate, but does little more than offer an introduction to the basics. The book's primary purpose is to pique interest — not answer all questions on all subjects.

As in his two previous tomes, the book concludes with a lesson in how to buy a personal computer and a name-brand buying guide. The guide contains the author's (brief) evaluations of various computers, software, printers and peripherals. It is this part of the book that is most disappointing, especially since it is the part that will be read the most closely by the computer-buying public.

The computer section is amazingly up-to-date in a field of constant change and new equipment. McWilliams covers the Lisa, the Kaypro 10, the TRS-100 and the Osborne Executive (although he curiously makes no mention of the Morrow Designs Micro Decision III). And to even greater credit, McWilliams encourages his readers to write him for updates to this section.

But where the book fails is in the software, printers and peripherals reviews. This section is cursory at best; it is poorly organized and barely touches on any of the topics it professes to cover. Just one modem and two printers are mentioned in a mere two sentences. One word processing program is covered as is one accounting program, one electronic spreadsheet and one database management program. They are not reviewed with the painstaking care McWilliams obviously took with the computer section, but are merely listed as recommendations. And then, for no apparent reason, the author goes into lengthy reviews of Lotus 1-2-3 and The Word Plus. Both are useful programs, no doubt, but not the most important ones for those thinking of purchasing a personal computer for a business.

Despite these faults, the book is useful for the new computer-user who wants to quickly learn the rudiments of what a personal computer can and cannot do in business applications.

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KEY WORD

KWIX II is the latest upgrade of Skyline Software's Key Word Index program for the TRS-80 Model II/12/16 SCRIPSIT Word Processor. It adds key word index, key word in context, periodical indexing and word frequency capabilities to the SCRIPSIT.

The KWIX Key Word Index uses non-key word dictionaries, which are system-supplied and/or user-created to automatically eliminate common words and then produce an index of the significant words in selected SCRIPSIT documents.

Key Word in Context lists key words centered, left or right in 80 or 132 characters of context with document, page and line references.

Full Word Index/Context bypasses dictionary usage and lists all words, index only or in context.

Word Frequency comes in three report formats and sorts descending by frequency or ascending by word.

Word Search uses KWIX's selective listing capability to find all references to a certain word or words on one or up to 100 diskettes.

KWIX 2.0 sells for $119 plus $3 shipping from Skyline Software, 3705 S. George Mason Dr., Suite 2411-S, Falls Church, VA 22041. (703) 578-3940.

WORDPERFECT REVISION

Satellite Software International has introduced revision 3.0 of WordPerfect.

In addition to the NEC, Qume, Diablo and Epson printers already supported, revision 3.0 will now directly support Okidata, Centronics, Toshiba, Olympia and more.

Through a set-up menu, users can now "map" up to 52 keys, choosing from a variety of 126 ASCII symbols. Greek, math and foreign characters will appear on the screen with a single keystroke and may then be printed with printers that support those characters.

True proportional spacing, cancellation of the hyphenation of a word and protection of confidential documents with passwords are some of the new features of revision 3.0.

WordPerfect sells for $495, which includes a spelling dictionary, math, automatic footnotes, text columns, a built-in printer spooler, macros and a sophisticated merge feature. The cost of the update for documentation, template and diskette from the manufacturer is $30. Many dealers will update a diskette at no charge.

For information, contact Satellite Software International, 288 W. Center St., Orem, UT 84057. (800) 321-5906.

MICROFAZER BUFFER

Microfazer is a printing enhancer that performs the task of a buffer or spooler without using any of the computer's own memory.

New from Quadram Corp., Microfazer is the first print buffer with a full half-megabyte, essentially turning a "dumb" printer into a "smart" printer with 8K to 512K RAM. A half megabyte (512K) is eight times the memory of most microcomputers and is equivalent to over 250 typewritten pages.

The Microfazer can be used with almost any computer and printer, whether serial or parallel. It is enclosed in a durable metal case and is equippped with a pause/copy feature allowing additional copies of the buffered information with the push of a button.

Retail prices for the parallel to parallel model range from $159 for 8K to $1395 for 512K. Serial to parallel and parallel to serial models range from $199 for 8K to $330 for 64K.

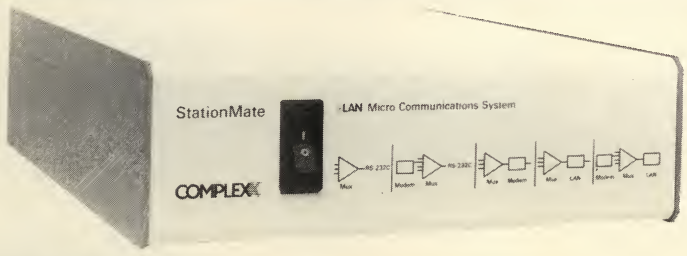
For information, contact Quadram Corp., 4357 Park Dr., Norcross, GA 30039. (404)923-6666.

WRITE AWAY

Write Away, an easy-to-use, full-feature word processing system for the Apple II, II+ and IIe, has been enhanced to take full advantage of the rapidly expanding field of electronic mail. Now, in addition to creating, editing and printing documents, the user can transmit them.

TERMINAL, a complete terminal communications program has been fully integrated into the Write Away system. Some of the features it offers include auto-answer, writing file to disk, full duplex, transmit, reading file from disk, catalog disk and auto-dial.

Write Away sells for $175. For information, contact Midwest Software Associates, P.O. Box 301, St. Louis, MO 63074. (314) 997-6470 or (800) 835-2246, ext. 467.



STATIONMATE COMMUNICATIONS SYSTEM

Complexx Systems has introduced StationMate, a unique data communications system that combines a local area network interface, a switching statistical multiplexer and an intelligent modem with an automatic dialer into a single device.

The fully-integrated design of the hardware and firmware results in a system that offers independent use of the three basic functions while allowing all three to be used together in various configurations to create sophisticated networks for micro and mini computers.

Each StationMate provides three data ports with standard RS-232C connectors. The modem gives a fourth (remote) user access to the system.

The unit sells for $1,450. For information, contact Complexx Systems Inc., 4930 Research Dr., Huntsville, AL 35805. (205) 830-4310.

HARD DISK SYSTEMS FOR IBM PC

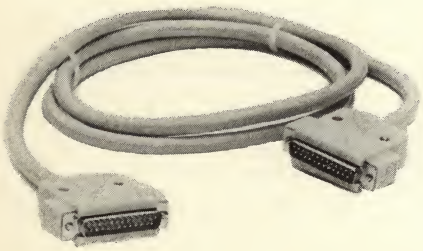
A new series of hard disk systems for the IBM PC has been introduced by Falcon Technology Inc.

In addition to providing either 10 or 15 megabytes of mass storage, the Falcon "PC eXTender" series hard disk systems include a serial port, a clock/calendar, sockets for as much as 192K of additional system RAM and software back-up utilities.

The hard disk controller together with the added functions occupy only one system expansion slot.

Retail price for a 10MB drive, which is mounted in an IBM chassis is $2,295. The 15MB version is $2,595. When mounted in a Falcon case, the 10MB drive is $2,495 and the 15MB drive is $2,795.

For information, contact Falcon Technology Inc., 6644 S. 196th St., Suite T-101, Kent, WA 98032. (206) 251-8282.



CONNECT IT

Ora Electronics has added a line of high-quality data cables to its Data Spec line of computer accessories.

Among the new Data Spec cables are fully shielded 25 conductor cables with 25 Pin "D" subminiature (RS232) connectors, in various lengths from three to 25 feet. The cables are designed to connect a host computer to peripherals such as printers, CRT terminals and modems.

For information, contact Ora Electronics, 18215 Parthenia St., Northridge, CA 91325. (213) 701-5848.

TRS-80 MODEL 4P

Radio Shack has introduced the TRS-80 Model 4P computer, a transportable compact version of the Model 4 that offers the features required for full desktop computer use. It can be used anywhere there is an AC outlet.

The Model 4P sells for $1,799 and weighs 26 pounds. It is totally compatible with all Model 4 programs, Model II TRSDOS and LDOS, as well as CP/M Plus.

The unit comes with 64K memory that can be expanded to 128K and is offered with two built-in 184,000- character double density 5¼-inch disk drives.

The Model 4P Modem Board, retailing at $149.95, is a direct-connect auto-dial/auto-answer 300 bps modem with full/half-duplex and originate/answer modes.

For information, contact Radio Shack, a Divison of the Tandy Corp., 1800 One Tandy Center, Fort Worth, TX 76102. (817) 390-3300.

BABYTALK

Microlog Inc. has introduced BabyTalk, an intelligent processor-controlled communications upgrade for the IBM PC, Texas Instruments Professional Computer and other bus-compatible computers.

BabyTalk, the newest addition to the Baby Blue family, is a self-contained microcomputer with 64K of onboard memory and lavish communications support hardware. It is a multi-function board that is capable of handling complex communications and data management tasks as background operations while the host processor continues it usual foreground functions.

BabyTalk retails for $895. For information, contact Microlog Inc., 222 Route 59, Suffern, NY 10901. (914) 368-0353.

TRS-80 COLOR GRAPHICS SYSTEM

The TRS-80 Extended Basic Color Computer from Radio Shack is the heart of a new low-cost disk-based color graphics system.

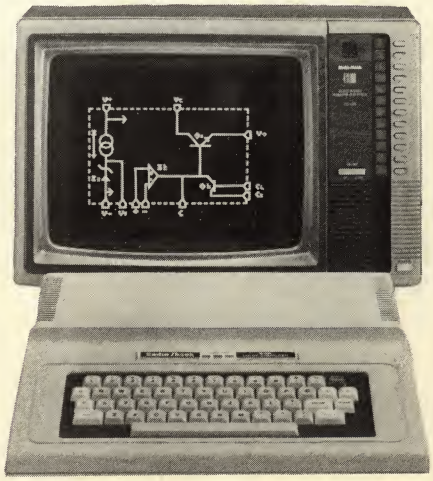
Available for $399.95, the computer contains a powerful built-in Extended BASIC language that can be used to access 32K of memory. The full 64K memory can be utilized by adding the new Color 2 Disk Kit ($399.95) and OS-9 ($69.95) operating system.

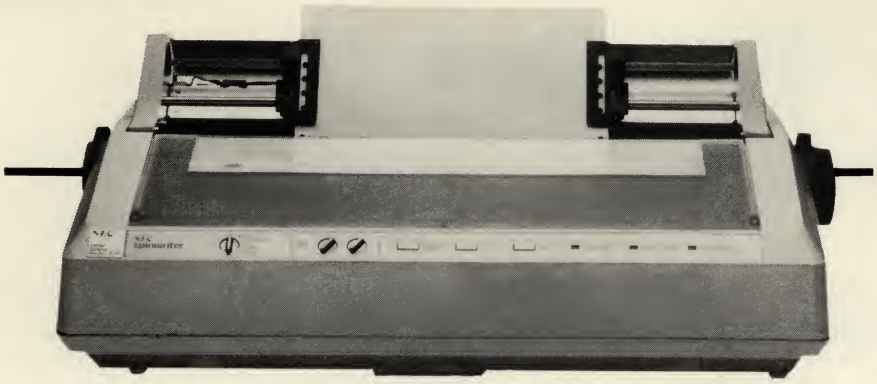
The 64K Color Computer comes with a compact white case with a new electric typewriter quality keyboard. It offers easy to use one line commands to simplify detailed color graphics and 256 by 192 resolution.

Offering features required by the serious programmer, the 64K Color Computer allows multi-character variable names, string arrays up to 255 characters, full-featured editing, tracing, floating point 9-digit accuracy, trigonometric functions, user defineable keys, specific error messages and PEEK, POKE and USR commands.

In addition, the new computer can easily be expanded. A printer, plotter, digitizer, graphics tables and up to four disk drives can be added for greatly increased storage. A telephone interface can be added for communications.

For information, contact Radio Shack, a division of the Tandy Corp., 1800 One Tandy Center, Fort Worth, TX 76102. (817) 390-3300.





NEC SPINWRITER FOR THE IBM PC

NEC Information Systems Inc. has announced a new member of the Spinwriter letter-quality printer family, which is fully compatible with the IBM PC and its application software.

The Model 2050 directly attaches to the IBM PC parallel printer port and becomes immediately functional for both data and word processing applications. The printer supports all domestic and international versions of IBM PC software.

This new Spinwriter prints normal text at a speed of 20 characters per second. Print thimbles and ribbons can be changed quickly and independently. All black multi-strike film ribbon produces sharp, crisp, camera-ready print quality.

Suggested retail price for the Spinwriter 2050 is $1,250. For information, contact NEC Information Systems Inc., 5 Militia Dr., Lexington, MA 02173. (617) 862-3120.

CLIPPER SURGE SUPPRESSOR

The Clipper is a new, low-cost power protection device from Dymarc Industries.

The unit, which sells for $49.95, protects computers and other sensitive electronic equipment from dangerous electrical spikes of 6,000 volts or more. It has a response time of five nanoseconds to stop both normal and common mode spikes.

Easily plugged into any three pronged socket, the unit provides three outlets of protected power for computers and peripherals. It features a fail-safe audible beeper and an LED to indicate when, for any reason, the Clipper is not operating properly.

For information, contact Dymarc Industries, 21 Governor's Ct., Baltimore, MD 21207. (800) 638-9098 or (301) 298-9626.

ENHANCED UPS PROTECTION FROM GOULD

Gould Inc. has introduced a new enhanced version of its 500 Watt rated Uninterruptible Power System (UPS).

The on-line system provides continual voltage regulation and noise elimination to personal computers, point-of-sale systems and other sensitive loads as well as battery reserve during complete power outages.

The Model GSU 3056 includes an internal 10-minute battery or can be used with external 48 Volt batteries for periods up to several days.

Prices start at $1,450. For information, contact Gould Inc., Power Conversion division, 2727 Kurtz St., San Diego, CA 92110. (619) 291-4211.

SPRINTER PRINTER BUFFER

The Sprinter is a new printer buffer from The Alien Group that allows its contents to be viewed on a standard monitor.

Text throughout the Sprinter's 62K memory can be rapidly accessed. A 12-button keypad features bidirectional scrolling and the ability to jump between numerous tab pints set by the user.

The Sprinter allows the user to instantly see any portion of a "printout" on a monitor instead of waiting for a hard copy.

It comes in both serial and parallel versions and will work with any computer that drives a normal printer. No modification is required to the host's programs.

For information, contact The Alien Group, 27 W. 23rd St., New York, NY 10010. (212) 741-1170.

CHEAT SHEETS

Cheat Sheets are new command summary cards for various types of applications software, including WordStar, that give computer users vital commands in plain sight.

Designed with Cheat Sheet Feet, the 7- by 12-inch cards perch atop the video monitor and jog the user's memory with commands that are arranged for quick visual access. They are printed on heavy gauge non-glare vinyl, which can even be washed.

Unlike keyboard template summaries, the Cheat Sheet cards are compatible with almost any computer that will run the software, not just certain keyboards.

Cheat Sheets sell for $9.95 ppd. from Printed Peripherals, 747 54th St., Oakland, CA 94609.

THE GREAT HIGH-TECH PAPER CHASE

Sometimes I wonder if business is being swallowed by its own paper.

Since computers can tirelessly produce endless ribbons of printouts without complaint, it's only natural, I suppose, that businesses' first application of their new desktop machines has been to continue building the empire of paper. After all, it's the most natural thing in the world for a boss to say, "Write me a report on that and make a copy for all the board members."

But computers (and bulging filing cabinets of unread computer printouts) are changing our attitude about paper. And videotex and other massive on-line databases probably will play a major role in that transition.

I thought about paper's changing role in business while watching the passing show at a computer fair I attended recently.

What caught my eye as I entered the fair was a brightly lettered sign that said:

"Hello, I'm user friendly."

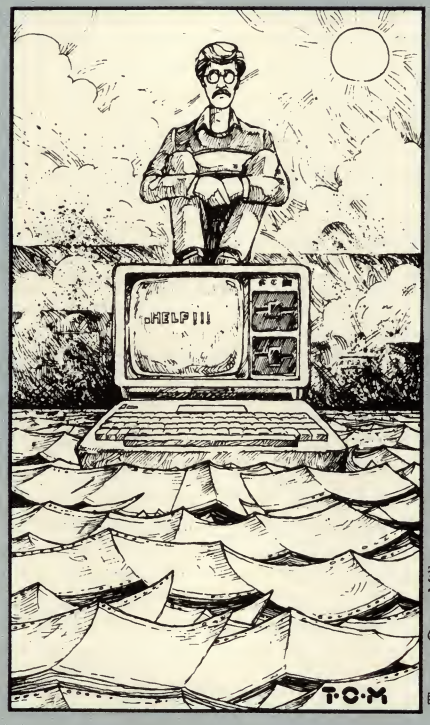
It hung above a blinking computer that nearly smiled as it invited passersby to take it for a spin. Look through its windows at all the data that can be diplayed simultaneously. Study its keyboard where the words are purposefully plain — "Pick up," "Put Down," "Go to Top." Tell it what you want to do by simply touching the screen with your fingers.

Off to the side, I watched potential customers approach. Since this was a show devoted to new computers, you could assume most of the people milling about didn't have to be sold on the idea of owning one. Now they were in the market.

Some of them surely brought with them the feverish apprehensions that months in the high-tech jungle can produce — they had been overwhelmed and overloaded with the hype of million-dollar computer ads. They had grown weary and nervous by the questions that some in the crowds asked (still haunted by the old bad dream of not having crammed for the exam) — "Is it CP/M compatible?" "Will it support multi-tasking?" "Is that a 16-bit processor?"

Pin-striped sales people had cultivated that cool smile that was at once condescending (just enough to be authoritative) and calculating (as if to say, "You too can smile like this, if you buy this machine.")

My eye was caught by a little man in a business suit. He carried a folded newspaper and an umbrella (though it wasn't raining), and he approached the machines with the familiarity of a veteran of these affairs. In fact, I recognized his expression. It was the same one I used to see on the faces of wealthy country gentlemen in Lexington, Ky., when, as a reporter, I covered the horse auctions. Here, as then, the



Thomas Owen Miller

business people strolled the stables of expensive thoroughbreds, looking for that rare blend of quality and low price — and not expecting to find it.

And, just as in the days of the auctions, I noticed the public had grown leaden-eyed. The little man with the umbrella was typical. Sales people offered their constant stream of superlatives, but he seemed not to hear. While they talked, he lifted the keyboard to gauge its weight, adjusted the contrast on the monitor. His hands, like those of the horse buyers, had learned the moves — what to touch, what to peer at. Surprise no longer came easily.

He walked away with a tight, noncommittal smile, leaving the salesman in mid-pitch.

I didn't really understand his lack of enthusiasm until later in the show when our paths crossed again. This time he was standing with another businessman in the back of a group watching a demonstration of a supercomputer that could handle several tasks at the same time.

"Hmmmm," I heard him say to his companion. "Thousands of numbers you never even thought about until you got a computer."

His friend raised an eyebrow. The umbrella man went on, "All my boss would want is a printout of everything in the computer. After we wade through the number, all we have left is a mountain of paper, which we file and forget."

As I walked away, I wondered about what I had overheard. The man with the weary smile had put his finger on a major stumbling block in the relationship between man and the new machine — the barrage of paper.

With all the talk of "computer literacy" and "user friendliness," most of the emphasis to date has been on making the machines and the systems easier to use. Less time has been spent on what to actually do with the computers.

My father-in-law, recently retired after a lifetime of white collar work, fondly remembers the days before photocopying machines were fixtures in offices.

"Memos weren't as common then," he said, "and when you got one, why, it was probably important, so you sat down and read the darn thing.

"After the photostat machines came out, everybody started making copies of everything for everybody. What happened then was everybody stopped reading them. If you had something important to say to someone else, you used the telephone. A memo would just be lost."

As computers begin arriving on the scene, there are some seriously contradictory feelings in the offices about paper. The boss says all important matters should be preserved in writing. On the other hand, subordinates know that, due to a critical paper overload, much of the material is going unread.

CompuServe has been largely responsible for changing my thinking about paper. As a newspaperman for nearly two decades, I've had strong

COMING IN THE FEBRUARY ISSUE OF ONLINE TODAY

Online Today
Beginning next month, TODAY will become *Online Today* — a name to reflect our expanding outlook on the entire online information industry. In the coming year, *Online Today* will cover a wide variety of topics in the information industry including work-at-home, traveling in the information age, private networking, networking and the law, electronic commerce, electronic publishing and much more.

Artificial Intelligence
Next month *Online Today* will examine artificial intelligence as it applies to data networking and online information retrieval.

Reviews
Reviews in the February issue will include the PM-300 Modem from Avcom Inc.; the Delta-10 Printer from Star Micronics Inc.; Peachtext 5000 telecommunications and word processor from Peachtree Software Inc. and nine other software and hardware items.

feelings about getting it down in writing. I guess I've always been "paper literate."

I remember when I first started accessing CompuServe three or four years ago, my first reaction was, "Wow, I've got to find a way to get a printout of all this stuff!"

For me, CompuServe was too enormous to grasp. I wanted to see it on paper, to map it and study it.

I knew, for instance, that there were many valuable programs and articles in the public domain area of the system — Public Access — and I hit on the idea of printing out a list of all the files. That way, if I needed a program from Access, all I'd have to do is consult my printed pages.

Well, as it worked out, that wasn't such a swell idea after all. Twenty-four pages (and 64K of memory) later, when I still wasn't even halfway through the listing, I abandoned the project. It was obvious that, even if I could afford to spend the time and a ream of paper for the catalog, it simply would be too bulky to be useful.

Out of necessity, I learned more about how to search the database online — to use the system itself to help find what I was looking for.

In other words, it was better to keep the entire database where it was — in the computer — and use the Public Access program to find the files I wanted, using a "keyword search." Then I could get printouts of only the material I really wanted.

On reflection, my perceptions of paper had changed subtly. No longer was a paper printout inheritently part of the information. Instead, the paper was merely a snapshot of the data — temporarily valuable, but expendable. I threw it away after I used it.

Obviously, paper will always have its place in my life. It's the original portable, practical information storage medium. But it will also stagnate us if we make computers no more than an extension of the photocopier.

Has the first blush of enthusiasm for business computers paled?

I think not. If the men and women I watched at the computer fair were showing signs of weariness, I think it's because they're realizing that owning a machine — even a "friendly" machine — isn't enough.

For business, the next step is to take advantage of the machines' strengths by learning to use information in its natural environment — the computer itself.

In the meantime, I think it's a good, healthy sign for the computer industry that business people still stalk the aisles of computer shows — that they've learned to handle the machines with the experienced hands of people looking for good horseflesh.

Charles Bowen is a contributing editor of TODAY. His CompuServe User ID is 70007,411.

Networking Without Wires
Continued from page 29
further than a letter away. The American Radio Relay League, (225 Main St., Newington, CT 06111), founded in 1914, is a national non-profit organization representing U.S. amateur radio operators. For a self-addressed stamped envelope, the ARRL will supply you with the name of a local club that administers training classes and license examinations.

The best place to look for information on radio equipment and software is in one of the major ham magazines. 73 Magazine (80 Pine St., Peterborough, NH 03458) is an excellent source of radio-related computer material, as is the ARRL's QST Magazine.

If you're a CompuServe subscriber, you'll certainly want to check into HamNet, an amateur radio special interest group. Under the generous auspices of system operator Scott Loftesness, this SIG is an almost inexhaustible database of licensing information, equipment for sale, technical tips, and news bulletins. If you have a problem, you'll always find dozens of friendly helpers eager to lend a hand. Just type GO HOM-11 at any page prompt.

And welcome to the world of computer radio!

John Edwards is an Extra-class amateur radio operator and a frequent contributor to TODAY. His CompuServe User ID is 70007,412.

The Joneses *by Pfister and Schwartz*

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